TRENDS IN EDUCATION

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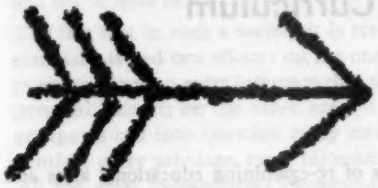

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The Shape of the Curriculum

The school curriculum is shaped by various forces—the nature of our society, the needs of individual pupils, the dynamics of the teaching process. Some of the implications are explored in the first two articles.

Values and the Curriculum

G. S. V. PETTER

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Today we are in the process of re-examining educational aims and re-defining objectives. For all our earnest thinking about equitable arrangements for educating the adolescent, for making school a more appetising place and for re-vamping the system of public examinations, we are not in this country clear in our minds about the true relationships between learning-based processes in education and knowledge-based processes. The first are associated with the primary school and the Plowden report; the second with the Crowther report and the era of the grammar school. Thus we heard the complaint that children brought up on enquiry method, on individual learning based approaches, were frustrated in secondary schools by being set in rows and taught traditional subjects by traditional methods. At the upper end of the secondary system there were arguments about the system of public examinations, about how much of the ability range should be examined, how it should be examined, how early specialisation ought to begin, what was meant by words like 'breadth' and 'depth', whether everybody ought to do mathematics for as long as they stayed at school and what we ought to do to supply ourselves with the scientists needed for a technological age. And what above all prevented us from getting down to the central problem of curriculum was that we allowed ourselves to become preoccupied with organisation.

The central issues of the curriculum fall within the orbit of the teacher, not of the administration. The teacher in the classroom was never the sole channel through which fields of knowledge were opened up to pupils, but he was once the principal medium. Nowadays mass media, audio and visual, as well as the printed word, have dramatically changed the role of the teacher. To what extent is he or she any more the 'authority' except in a titular, monotorial sense and in as much as there is some experience peculiar to the teacher that can be communicated ? The healthiest and most productive atmospheres in classrooms are often those in which teachers and children explore together.

The teacher of today is also influenced by the concept of the divine right of the individual, free to develop to full stature, liberated from inhibitions, untrammelled by conventional restraints and sovereign in conscience. Our society marches along on the theory that there are no absolute values, only such values as are arrived at subjectively, through experience.

Subject to these influences the teacher tends towards an attitude which might be described as 'conscientious non-committedness', careful not

to advance value judgements, to state any faith or impose an opinion or judgement on his pupils in case he should inhibit their growth into fully autonomous individuals. All too easily forgotten is the fact that 50 million autonomous individuals will find it impossible to live a constantly expanding life of exciting exploration without getting in each others' way. In a free society it is usually assumed that the State exists for the convenience and well-being of its members whose freedom is guaranteed by the rule of law. We are free under the law and not in spite of it.

The fact that in such a society it is restriction not freedom which is residual has had two effects: on the one hand the way is open to any pressure group to exert influence through the mass media or through personal contact; on the other hand it is possible for individuals or groups to call into question every established tradition, every convention, every privilege, every injustice that may be found in society. All the great humanitarian movements for reform, whether educational, social, penal, have derived either from individuals or from pressure groups. Until the second half of this century, in this country at any rate, resistance to the law has in general been motivated by desire not to overthrow it but to change it.

The phenomenon which we witness now is of a different kind: it takes the form either of the individual wishing to contract out of society altogether or of pressure groups working not for change within the constitutional framework but for revolution. There are those who declare their wish to jump out of the boat and sink or swim on their own; there are those who are impelled to rock the boat, perhaps eventually to prove to themselves that it won't turn over. These forces in society can I think be contained. So too can those who seek to use constitutional processes to alter course. But those whose avowed intention is to scuttle the boat, taking everybody to the bottom with them, have in my view been badly educated. This is not because they are dissatisfied with society as they see it, but because they have never learned by diagnosis to understand its complexity.

Social Values in Democracy

Here, in my view, is a central challenge to the curriculum. In a political democracy the curriculum reflects the needs and interest of the individual growing boy or girl, of pupils as members of varying groups, of the community as a political society whose members are active participants, of the community as a working society whose livelihood depends on a healthy economy and of the community as a living society with a culture. It is concerned therefore with personal development, with personal relationships, with citizenship, with vocation—the world of work—and with the spending of time. Above all it is concerned with values. It must contain elements which are intrinsic, that is concerned with pupils individually and in groups at their present stage, and elements which are extrinsic, that is concerned with the process of preparation for active participation in the adult community viewed as a political, economic and cultural society.

To be recognised as valid, therefore, the curriculum must contain terms of reference which are understood by and acceptable to pupils, parents, teachers, employers, trade unions and the general public. In the last analysis it represents a treaty between the school and the community which it serves. Neither the community nor the school

can be the sole arbiter of what is taught and learnt. But society makes implicit demands on the school in that it expects pupils to be prepared for living in the grown-up world.

All organised societies make claims on their members; we cannot live in the community on our own terms. Membership of any society involves participation. The degree to which we participate may depend, in certain circumstances, on the dictates of our own conscience. Total non-participation, involving a total isolation, presupposes that the world owes us a living, a debt which would soon lead to bankruptcy if everybody decided to drop out. Commonsense suggests that we participate if only to survive, and the healthy adult in a highly developed society such as ours has an expectation of *life* not merely a feeble hope for survival. Hence the dictate of commonsense, that as we cannot contract out of the society into which we were born, we must needs involve ourselves with it.

The attributes required for membership of a democratic society are inter-related but they do not make a neat pattern. Society's need for our personal skills can be co-related with its need for our willing co-operation, our adaptability and for our law abidingness. Quite a different profile is presented, however, if we correlate personal skills, sense of responsibility for others, resource and initiative and independent judgement. And a third profile emerges if we link sense of responsibility and loyalty to the group. The fact which emerges is that in a complex free society some of the attributes expected of us are potentially in mutual conflict. There is a time when our independent judgement may have to give way to adaptability; a time also when our resource and initiative may make willing cooperation difficult or impossible for us. And the most deep-seated conflict of all is that between acceptance of the rule of law and the loyalty to a particular group within society whose activities for the time being appear to be at variance with the law.

The only pragmatic solution to this problem which can be expressed in general terms is the decision to *reconcile* the conflicting claims. This is after all the essence of the democratic process which attempts to guarantee that decisions made by a majority are implemented without denying the right of the minority to disagree and of individuals to hold personal points of view without fear of victimisation. Only by the operation of compassion, forbearance and the sense of personal responsibility for others can decisions in a free society be reached. In short, all democratic processes involve a measure of reconciliation, as indeed does the process of self-adjustment in a multi-racial or multi-lingual community.

Personal Values

If these attributes represent values in the eyes of society with which the school must concern itself, can we identify the entitlements of the individual growing boy and girl—a complementary or contrasting set of values? I believe that there are at least six such entitlements, the last of which is the one that I want particularly to emphasise.

First is the fundamental entitlement to be cared for—to matter to somebody—to belong. In terms of human relationships this is perhaps the most deep-seated need.

Second, the entitlement to learn with experience and with guidance to understand oneself and to understand other people.

Third, the entitlement to find full potential in terms of personal development and achievement; in terms also of the capacity to participate, while earning a living or spending time, with all those with whom we associate either regularly or casually.

Fourth, the development of intellectual powers, through the building up by each individual of his or her own body of knowledge as a resource, learning, that is how to put knowledge to work; learning also to distinguish and whenever necessary reconcile the rational with the irrational. In everyday life it is the capacity to use knowledge, to make a reasoned appraisal of a situation and to control impulse which marks the balance in a responsible adult. Closely allied with intellectual, cognitive powers, are those which derive from the imagination. Hence the fifth entitlement—to develop creative powers and with them the aesthetic sense which involves a subtle interplay between intellect and imagination. If human beings rely on the capacity to comprehend and to interpret in communicating with others, it is the satisfaction which can spring from an act of creation which brings self-confidence. Knowledge and understanding of self are futile unless such knowledge leads to the discovery of one's own potential. The stimulation of the creative sense can produce an intense involvement in which mere experience of making and doing fails to satisfy unless something is achieved. Deep involvement induces a discipline which is self imposed. The encouragement may come from without but the driving force is within. And the corollary of this is that a man or woman who has been deeply involved in using the creative/aesthetic processes readily learns to enjoy to the full what others better endowed have created. Aesthetic appreciation is not a passive process; rather is it the active participation of a viewer or listener with a work of art or a demonstration of physical or intellectual skills. A man does not lose his identity by recognising a talent superior to his own; he merely adjusts his perspective.

The sixth and most significant entitlement of the growing boy and girl is to be made aware of the powerful influence exerted by those whose inspiration springs from strong convictions in the sphere of religion, morals or politics. The mainspring of inspirational forces is faith—something to be embraced either blindly or after measured consideration. In a free society liberty of conscience is of the essence, but the individual is entitled to be helped to understand the implications of accepting or rejecting a religious creed, a political theory or a moral tenet. This is not a matter of teaching boys and girls either how to believe or what to believe; but it does imply helping them to learn to understand what it means to believe in order that they may be better prepared to face pressures which they might otherwise welcome or reject without understanding why they were doing so.

Curriculum as Compromise and Inspiration

The medium through which the claims of society and the entitlements of the individual can be reconciled during the years of adolescence is the curriculum. Since this is in essence a treaty between the school and the society in which it lives and works, its currency consists either of individual subject disciplines, or correlated subject disciplines or broad areas of study, providing common ground to be explored by the teachers and the taught, giving opportunities for individual learning, independent work and seminar discussion. I use the word 'currency'

because the school programme needs to have relevance not only to growing boys and girls but to their parents, to their future employers and to the general public. What pupils learn may have currency value in terms of examination results which will 'buy' them courses in higher or further education or immediate employment. The trouble is that what is examined is too often what can most readily be assessed in terms of grades or marks. When young adults emerge, what assessment will have been made of their moral, social, political or religious sense or sensibility? In individual cases and for individual facets, personal assessment by a teacher may well have been made in testimonials or references. But too often, because we are dealing in values, the pervading ethic of the permissive society has dictated an attitude of neutrality.

I would suggest, therefore, that a teacher should not be afraid of making a value judgement, of declaring his or her own position, of stating a faith and expressing a conviction. I am not suggesting that the curriculum should contain a survival kit, part of which is labelled religious, part moral, part political—though economic and social survival kits, if available, would raise no eyebrows. I am not suggesting that a teacher should impose, through personal authority, a personal judgement or a personal point of view. In a healthy teaching and learning situation, authority in a real sense attaches to exact knowledge, clear reasoning, accurate description, and above all to the integrity of the teacher. Experience indicates that confidence in a teacher's integrity is best established with a group of pupils when they can feel that they are being individually understood and they for their part feel that they understand the teacher—who he is, what special experience he possesses, what he thinks and why he thinks it.

Just as the curriculum is a medium for reconciling the requirements of society and the entitlements of the individual, so the teacher is an agent for reconciliation first between the forces of reason and of impulse. This is not just a simple matter of making boys and girls realise that, whether we are concerned with scientific discovery, historical analysis, aesthetic sense or moral judgement, there is a constant interplay of logic and intuition, important though this is. The problem is much deeper. Processes of reasoning, employing either inductive or deductive logic demand a cool head and an absence of external pressures and stresses. If all decisions were made in the cool light of reason, then the Utopia envisaged by some idealists might come about. But history is often made by mistake, scientific discoveries by chance and human decisions on the spur of the moment. Events can only be explained if it is realised that some of the actors in the drama have acted irrationally. Scientific discovery follows experiment, trial and error; it springs partly from logical reasoning and partly from sheer hunches. Choices and decisions made by human beings are just as often the result of powerful feelings or the direct influence of another person as they are the result of cold reasoning.

We live in a state of constant confusion and bewilderment unless we have developed powers of discrimination, a knowledge of ourselves sufficient to enable us to control to some extent our emotional reactions and unless we are fortunate enough to have embraced or established for ourselves a set of guiding principles which underpin our mode of conduct. As adults, we use our experience, our knowledge, and our

powers of reasoning, but these are not really the driving forces. Quite apart from the instinct of preservation, the motivating force—our vitality in fact—depends far more on faith, inspiration, courage, determination, dislike, love, hate and fear than on the intellectual processes which we have so much stressed in our English educational system. The intellect can temper the emotions and refine the senses but it cannot destroy them.

It is one of the characteristics of a free society that the powerful emotional forces which can sway the multitudes are at the disposal of any individual or group able to make use of them. The democratic way of life is a guarantee against tyranny, but the powerful forces which could be used to subject or condition a whole people are still there ready to be tapped. You do not destroy power by preventing its use by a tyrant.

When a group of people organised for whatever purpose, seeks our support, they win it only if we believe the rightness of the cause which we embrace. We may examine rationally the pros and cons of enlisting, but if we in fact do so, it is either a positive act of faith on our part, or the result of some kind of coercion on the part of the group in question. We may have exercised both our free will and our judgement before committing ourselves. If properly educated, we may realise that we have been torn between two alternatives, uncertain whether to commit ourselves, or powerfully drawn by influences which we felt were too strong to resist. In fact, we have some idea what is happening to us. We have all learnt about this through varying amounts of experience. But how on earth do boys and girls learn? In their school programme which may consist of language and literature, mathematics and science, humanities and creative/aesthetic/practical activities, who teaches them anything about the mechanics of faith?

I believe that an element in the curriculum, perhaps best described as 'ideals and inspiration', could provide the answer. In every single organised activity which takes place in a school either ideals or inspiration has its place. Literature, the sciences, the social sciences, the creative arts, craft, physical activities—all these are concerned with conditions in the material world and what man has done to change them under some sort of inspiration. They are concerned with the human condition and with the human aspiration to better it. They are concerned with the world of the imagination of which inspiration is the generating force, with creative arts and crafts in which the concept of perfection and the urge to be original are bound up with a vision of the ideal, the aspiration to achieve it or break away from it. They are concerned with the world of physical activity in which human beings are fascinated by the possibility of greater and more impressive feats of skill. It is the vision of perfection and the inspiration to try to reach it which generates enthusiasm. In its turn, enthusiasm produces involvement. And with involvement comes the self-discipline which turns experience into performance. We may perhaps agree that innate ability, or ability which is nurtured, has significance in the life of our pupils, but what matters above all is their motivation, and the degree to which they are motivated will depend in great part on the extent to which the concept of the ideal and their own inspiration have been awakened.

The teacher has to be a reconciling agent in another way because some

reconciliation between the claims of knowledge on the one hand and the pupils' capacity to learn on the other has to be effected sometime during the period of adolescence. Learning-based education leads nowhere unless it produces a capacity and a willingness to submit to the discipline of a structured course of study. We cannot put knowledge to work unless at some stage we have learnt to systematise it. In the study of the material world and of human society, in the development of individual skills and aptitudes or in creative/aesthetic activity, the teacher's task of reconciliation, though far from easy, *can* be achieved and be *seen* to be achieved. But the sphere of ideals and inspiration is intangible and elusive. Ideals may be in conflict and inspiration as a driving force may drive men to create, but may also drive them to destroy both others and themselves. As there are no universally accepted ultimate truths or ultimate values, where does the teacher's duty lie?

What the Teacher Can Give

In a totalitarian state, it would be the clear duty of the teacher to reflect the political and social ethic of that state; in a free society, it is I believe the duty of the teacher to embody and exemplify the free man in action. He can demonstrate on the one hand those qualities which society demands of its participating members; he can show on the other hand that he appreciates those entitlements which his pupils have a right to expect. If the teacher behaves like a fully participating adult member of society, he cannot function normally or convincingly unless he demonstrates in front of his pupils those facets of his character and personality which he brings into use in his day to day life. He must present a whole person to those whom he is teaching, not a carefully presented profile or a defensive facade. We only know the essential features of a man, when we know what he thinks, what he feels, what he believes. If therefore he makes a standpoint clear, whether it is on a moral, a political, a social or a religious issue, the effect of his doing so is not significant only for the influence it may have on the point of view that the boys and girls may take up as a result of listening to him. Even more significant is that he may show them quite simply the way in which an opinion, however strongly held, is expressed, the way it is argued, and the effect it has on the person who is doing the arguing. This is not indoctrination; it is probably the most powerful inoculation against the kind of indoctrination which we are inclined to fear. I do not believe that teachers will be 'bad influences' or a danger to the community because they are known to have strong political opinions or fervent denominational convictions. If they use classroom time to attempt to make converts, they are being unprofessional. If on the other hand, a dialogue develops on either politics or religion, the fruitfulness of that dialogue depends on the ability of everyone concerned to say what they think or what they believe and why. In such a dialogue the teacher has more experience, a greater command of language and certainly more confidence in what he thinks or believes. If teachers in schools do not demonstrate to the young how value judgements are made, nobody outside the educational world is likely to bother to do so.

For those of us for whom there are some ultimate truths, some permanent values, and a faith which we uphold, however unsteadily, this is no time to lose heart. No wonder that some young people want to upset the boat when no-one during their educational programme

has given them an opportunity to understand what keeps it afloat, why it has a rudder, and what course it is following. I have no fear of a school producing revolutionaries; I have only a fear of the revolutionary who is badly educated. I have no fear for the boy or girl who comes under the influence of a man or woman whose life is dominated by the force and power of religion; I have fear only for the young man and woman adrift in the adult world having found work but still looking for faith. Finally, I have no fear of the teacher who makes a value judgement; I have fear only for the young citizen who is swept hither and thither by the cross-currents of adult opinion because he has never learned to understand either himself or other people and has no example to follow.

The Qualitative Element*

ROBIN HODGKIN

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Already a few critics are becoming restive under the weight of literature on educational objectives. To discern dim and distant goals is the task of artists and priests. We should distinguish from such prophetic aims all those educational objectives which *can* be located, and often measured, in space and time. These objectives are useful but they are essentially trivial, like examination success or challenge cups. It is the *work* of attaining them that is not trivial. When you examine so-called 'aims' of a school they usually turn out to be operational principles or shared concepts already affecting the work in hand. Quality in education is more like a pleasant flavour or fragrance—not out there in the future but potentially all around us. Peters makes this point in *Authority, Responsibility and Education* when he says that aims are implicit in the manner of proceeding.

Practical experience suggests that a person teaches best by his style of groping and doubting and by sustaining a genuine quest, sometimes in opposition to those who 'know the answers' and see goals clearly. We should not despise the clarifying effects of short term objectives. These are useful, but not fundamental. This is brought out by the fact that 'failure'—in an examination for example—can often provide unforeseen and important educational opportunities.

Perhaps we need to develop a way of thinking about education which will have at its centre a sense of immanent quality; and what is more, be closely related to uncertainty and to questioning. Curriculum theory too often reads as though teachers were controllers who must not be contaminated. But first and foremost we *are* contaminators, infectors, fire-raisers. Like other artists we need to have a highly developed and adventurous sense of how intellectual life can be kindled. Though sometimes we may stand apart, our essential work

*This article is taken from a longer paper which presents an 'organic' three-dimensional model of the curriculum in which time (i.e., developmental stage), the varieties of sensory data, (visual, aural, manual,) and structure are related. The last of these dimensions forms the subject of the article.

is within a process which we can never entirely understand or control. We may be able to specify criteria or to devise tests which indicate the absence of quality; but the quirks of a gifted teacher or the oddities of an original child will escape measurement. On the other hand a competent teacher or inspector (children too) can develop a nose for quality, a practical connoisseurship. The good things that we look for are neither abstruse nor mysterious. Indeed they should be the constant, practical concern of all who teach. What are they? Looking at a successful educational activity from the child's side we will usually recognise: questioning, interest, search and sustained attention. Looking from the teacher's side we will notice attitudes which are, at least partly, complementary: awareness of structure, awareness of value and an openness to meaning.

Structure, the dimension of quality

'To learn anything means to become familiar with its intelligible patterns.'* These patterns are externally the structures of culture. Examples are the organisation of a paragraph or of a library, the rhythm of dancers or the rituals of a congregation. The concept of structure is also important when we are thinking about the curriculum, but there is a danger of using the word with inadequate content. It has already been overworked by the *avant-garde* as they jump on Lévi Strauss's band wagon or Chomsky's chariot. Edmund Leach defines structure in straightforward terms as 'patterning of internally organised relationships expressible in multiple forms'.†

It may make the subsequent argument clearer if I list six main characteristics of structure as perceived or created in a culture and which distinguish it from simple mechanical structures.

1. The structures with which we think are complex, and are only rarely linear, though they may often be described in linear form, as in a well articulated, old fashioned, text book.
2. Structures operate in the time dimension and are, therefore, to be regarded as part of the *process* as well as of state.
3. They are generally asymetrical in time; that is to say they appear different to the 'learner-before' and to the 'learner-after'.
4. They are open at the edges. That is, they may link up with other structures of similar complexity.
5. They are open-ended. That is, they give rise to more complex structures.
6. They can be manifested in a variety of forms and no one manifestation has inherent priority.

An example from teaching physical geography at various levels illustrates Bruner's dictum that students should return to the patterns which underlie phenomena again and again as they reach higher conceptual levels; hence his idea of a 'spiral curriculum'. Let us consider a geographer teaching about convection storms to different age groups. At six a child may experience April showers and get vivid experience of their gusty suddenness and of the possibility of hail and thunder. This is the stage at which Bruner's 'enactive' mode of instruction is most effective. If the child asks about such storms and

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* Phenix, P. H., 'The archetectonics of knowledge' in S Elam, *Education and the structure of knowledge*, p. 50.
† Woolfson lecture, Oxford 1972.

hears them discussed intelligently by a teacher or parent he will also get the idea that there is more to it than this, that there may be 'an explanation'. The cultivation of such awareness, that there are more complex explanations further along the road and that the child can have access to them whenever he wants to try is a very important element in education. There is also, of course, a danger of this becoming a 'you're not old enough' ploy.

At the age of ten the same child may learn about convection currents and observe these in a glass trough over a Bunsen burner. This may lead to his being given an acceptable 'explanation' of April showers, namely that they are brought about by the differential heating of the earth's surface; this is, from the meteorologist's point of view, a very inadequate account. Here again it is the teacher's task to leave both a sense of understanding and also a sense that there is more to discover. At this stage the teacher will be wise to establish some preliminary lateral association with comparable moving air systems such as hurricanes or land and sea breezes.

At sixteen the same complex mechanism of moving air masses needs to be approached at a higher conceptual level. Cross-sectional, two dimensional diagrams will be inadequate. Bruner's iconic mode was appropriate to the last stage but is now superceded. The life cycle of a convection storm will have to be imagined in time and in space, on the large and on the microscopic scale. It becomes necessary to make the link with physics explicit and to understand how, in a convection cloud, latent heat from condensation is released in great quantities and to see how the storm becomes a 'thermal engine' run by this latent heat energy of damp air. There is also the fascinating mechanism of hail formation which has been investigated in recent research. One might be asked about the generation of electricity in clouds and explain it perhaps by having recourse to further models like the static charges generated by friction. But here, once more, the conceptual structure should be left open for the physics specialist or the inquisitive generalist to follow further if he wishes.

The quality of learning is manifest not merely in the extent to which conceptual structures are investigated by the joint activity of teacher and pupil. It becomes apparent too when certain open-ended attitudes, such as curiosity or determination, take over where the explanatory procedures appear to falter or stop. In this example the attitudes fostered by the gradually enlarging picture of complex cloud mechanisms might be summarised as: a keener eye, an awareness of certain limits of knowledge, an enhanced sense of curiosity and also, perhaps, a sense of awe. In studying a poem or a novel the structural core of the experience may well be less complex but the emotional and aesthetic element will be more so.

Structure as pattern with direction

A discipline is generated by individuals working at the frontier of knowledge. Such people are likely to be more aware of the complexities and qualitative levels in their disciplines than the popularisers and the teachers who mediate them to others. In principle there is no limit to the number of disciplines that could be generated but in practice they tend to form into recognisable clusters. It is worth pausing to ask: what is the nature of the process which brings together individual creative activity into publicly recognised disciplines? It is the increase

in shared meaning and this includes shared values. This sharing happens first of all through teachable skills, then through co-operative skills but most of all it happens through the use of the super skill, language. As these shared procedures and experiences of a discipline are reflected on and talked about they are found to have a structure, a degree of internal logic and consistency. It is this which has misled some thinkers into classifying disciplines on a logical basis. This is like trying to classify the sciences by the mathematics they contain rather than in terms of what they do and of the questions they ask. But the puzzles and illogicalities of a science or any other discipline may be more characteristic than its logic. Even the most powerful disciplines share disturbing problems and display blurred edges and their internal structures undergo slow strains which gradually transform them.

Teachers are deeply involved in these processes and they should never be seen as passive conduits, transmitting known quanta of information from high to low. Theirs is a far more athletic task: to be at the same time actively in touch with newly forged concepts and capable of transforming these into terms appropriate to the play of children.

Teachers may also be conscious that the word 'frontier' can be used in another and special sense to describe that 'intermittently enlarging boundary which limits the coherent understanding of an individual or of a group'. For a developing child, this frontier is reached whenever the assimilation of new experience cannot proceed unless the child's conceptual pattern is itself changed—what Piaget calls 'accommodation' as opposed to 'assimilation'. It is the recurrent point on our journey at which we have to stop cramming souvenirs into our old trunks and get new luggage.

On the macro-scale of human culture the concept of the frontier is also applicable. Indeed the term 'frontiers of knowledge' is often used thus and in this sense I propose to write it with a capital 'F'. Those who work on that Frontier and the teachers are not antagonistic. They are inevitably out of phase and are therefore only capable of viewing each other's problems by an effort of imagination. It is precisely this kind of joint imagination which has characterised the major curriculum reforms of recent years. Pierre Bourdieu refers to this dialectical process as 'the opposition and complementarity between creators and teachers' and he describes it as creating a fundamental intellectual field whose form is generated at the Frontier.*

The way in which school subjects become named and allocated is one result of this dialectic, but here the teacher has the dominant voice. Fashion, prestige and pedagogic guile all play a part in determining the subject names that appear on timetables and there have been some very odd ones. In the long run, however, the degree to which disciplinary areas in education become established depends on their usefulness either in generating advances on the Frontier or in the workings of society as a whole. Again in the latter field it is mainly teachers who determine what concepts and skills are used. But this is a very slow process, full of pitfalls and errors. Ultimately, here too Frontier criteria have to be used. Can Latin or music-and-movement lead children, through skills and concepts, to the kind of Frontier

*Intellectual Field and Creative Project in *Knowledge and Control*, Ed. M. H. O. Young.

experiences and attitudes which can be seen to be good? It is no use our evading this responsibility and trying to rely on objective tests or vocational goals. Nor can we leave it to the innovators on the Frontier for they have other concerns. Unless teachers themselves acquire a keen sense of immanent quality in their work with children, they will fail in their responsibility at critical moments. The young will then be abandoned to *cul-de-sacs*, examinable facts and IQs.

We must now consider a further characteristic of structured knowledge —the fact that it has direction or 'grain'. A teacher needs to experience both the ease of holding knowledge in a structured pattern and the difficulty of grasping such a pattern for the first time. A structure is the pattern that you see, more or less coherently after you have mastered a branch of the subject. It must have been there before, but not for you. How can this be? Imagine that you are approaching an oak tree in early summer. A large bough, with light foliage points directly towards you. You can only vaguely see that all this greenery is centred on something which you assume must be the main branch. You cannot see many of the linking branches completely and practically none of the actual joints. But move up to the main trunk, and turn right about in the green shade. Then the structured system of the branch is clear and complete. Beyond this branching structure your first bright intimations are still partly visible but now many yards away. When we move through a field of knowledge we need to recognise this 'grain' in it—an easy direction and a hard one. Wittgenstein made the point when he used the image of an ancient city or a labyrinth. 'You approach from *one* side and know your way about; you approach the same place from another side and no longer know your way about.'*

The word 'structure' is best used for the organisation of the external things of knowledge, of words, maps, diagrams, libraries, laws, hierarchies, and of the communities who organise these things. It is sometimes applied to the mind and its workings but this is not altogether satisfactory. A recognisable pattern 'in the mind' may be an image of some sort, perhaps an image of a plan. But generally the rules and patterns with which we directly organise perceptions and memories are, at our present stage of knowledge, best described by more mentalistic terms like 'concept'. In this paper therefore we have used 'structure' as the external equivalent of complex concepts and of the larger schemas which relate them. We thus avoid some confusion if we talk about the structure of a geography curriculum and of the corresponding concepts or schemas in the mind of a geographer. The word 'discipline' is more ambivalent for it is both personal and collective. One can reasonably speak of the external structures which give form to a disciplined activity or of the internal concepts and attitudes which sustain it.

An important point was summed up in Wittgenstein's metaphor and can now be elaborated. If you approach an area of knowledge and 'know your way about' you are in a position to choose routes, to abstract a linear structure from the reticulated structure in which you find yourself. You could, hoping to facilitate the movement of others, write a guidebook, or linear statement, of selected routes. This is what most text-books are. But if you approach a city or branching structure from the other perspective, that of a stranger, then you must grope,

*Philosophical Investigations.

experiment, discover. A teacher needs to be master of both approaches.

This distinction brings out the fundamental difference between a syllabus and a curriculum if one sees these terms, artificially, as extreme points on a continuum. A syllabus, in this pure and frigid sense, is a linear arrangement of testable items; a curriculum is a complex branching structure, carefully designed and continually modifiable to maximise the development of a learner's skills and the extension of his conceptual control. The lower branches of a real curriculum (as opposed to the theoretical one above) do of course contain chunks of linear material and *cul-de-sacs* and favoured domains and biases. To some extent the exploration of these lower branches is testable and predictable. But in its higher stages an effective, open curriculum runs up towards the Frontier of human creativity and original discovery. At these levels, though the general style of an art or a science may be specifiable, unpredictability and untestability should be expected.

It will have been evident that the words 'skill', 'concept' and 'attitude' are here often being used together. They can be regarded as being on a mental continuum which parallels the less-to-more complex structure of the external world. In some way brain complexity must reflect world complexity. It is not hard to see that high level skills and concepts have their roots in simple sensory and bodily processes. By 'attitude' I mean those general personal dispositions which sustain all skills, all thinking and relating. At the frontier, existing skills and conceptual schemes become, by definition, inadequate; attitudes are what remain. Examples of such attitudes would be curiosity, awe, determination and perhaps courage—all of which can sustain action when skills are failing and concepts are blurred or in contradiction.

What can the schools do to promote understanding between different religious or racial groups? This article discusses the contribution being made in Northern Ireland.

Community Relations in Schools in Northern Ireland

JOHN FERGUSON

John Ferguson is Staff Inspector of Secondary Schools with the Northern Ireland Ministry of Education

For the most part schooling in Northern Ireland is segregated. The vast majority of Roman Catholic pupils attend schools which are under the control of their church and only a very few go to schools provided by local education authorities. The only educational establishments which are 'integrated' are institutions of further education, the polytechnic, the universities and a handful of nursery schools. It is not the intention of this paper to debate the merits and disadvantages of integrated education but it is against a background of segregated schooling that the problem of community relations must be considered. The problem is all the more complex when it is remembered that in many of the urban areas of Belfast and Londonderry the pupils live in segregated housing estates. The mass media have made districts like Ardoyne, Andersonstown, Shankill Road and Bogside household names on both sides of the Irish Sea.

People living on the mainland may be forgiven for thinking that community relations are non-existent in schools in this part of the United Kingdom. Television and radio tend to highlight the more lurid and violent aspects of civil strife and, apparently, stone-throwing youths in the Bogside or on the Shankill Road are more newsworthy than groups of sixth formers of different denominations engaged on joint community service work in an old people's home or combined field trips in the Mourne Mountains.

Even before the outbreak of the present troubles in Northern Ireland teachers in all types of school on both sides of the sectarian divide had sought to foster inter-school activities in the belief that the more frequently pupils of different religious backgrounds come together on the sports field or an educational visit, the more likely they are to get to know each other and to respect each other's opinions and attitudes. Prejudice frequently springs from ignorance, and tolerance must come from knowledge based on actual contact with one's neighbour. The past three years have witnessed an impetus in the efforts of teachers to break down artificial barriers between schools both informally in the course of their normal work and at a more formal level by means of the Community Relations in Schools Project sponsored by the Northern Ireland Schools Curriculum Committee.

Teachers in this part of the world would wholeheartedly applaud the following extracts from the recent DES publication *The Education of Immigrants*

> Much can be done to counteract the formation of stereotypes by encouraging pupils in all subjects to test generalisations, to formulate their own judgments and to assess individuals in terms of what they personally know about them rather than in terms of preconceived ready-made value judgments on the category of people to which they belong.

This approach to race relations can apply equally to the treatment of community relations and, indeed, has been operating in many of our schools in recent months both in the classroom and in the promotion of inter-school activities.

Inter-School Activities

Inter-school activities occur at all levels and it is proposed to cite only a few examples, mainly at sixth-form level.

Senior pupils of all denominations have been particularly successful in joint community service projects. In the city of Armagh, for example, there is a schools' VCOAD Committee (Voluntary Committee on Overseas Aid and Development) which meets regularly to discuss ways of making known the problems of developing countries and organises various social functions and sports activities.

Sixth-formers at two County Armagh schools (one co-educational Protestant and the other a girls' Roman Catholic school) investigated prejudice in their own schools and devised a questionnaire which was issued to all pupils aged 14 and over. Some of the questions were of the Yes/No opinion poll type, e.g. 'Have you any Protestant/RC friends?' In the Protestant school 31 per cent had no RC friends; in the other, 27 per cent had no Protestant friends. The two main questions were 'What are the causes of Ulster's problems?' and 'What are the solutions?' There was some divergence of opinion about the causes of the problems but considerable agreement on possible solutions. Most comments displayed a fairly liberal outlook, although many of the pupils were thinking in terms of 'us' and 'them' rather than seeing themselves in a neutral position. 'Contact' seemed to be the keyword: 99 per cent of Roman Catholics and 95 per cent of Protestants favoured more communication between the two groups.

Conferences of senior pupils of secondary schools are held regularly under the auspices of the Northern Ireland UNESCO Committee and pupils from all parts of the province have an opportunity of discussing together in a calm, dispassionate atmosphere world problems and the relationship of these problems to the present situation in Northern Ireland.

Joint educational visits and field trips are playing an increasingly important part in the development of community relations. There are many opportunities for participants in competitive sports and games to meet in the gymnasium, swimming pool and on the sports field.

Schools frequently come together for debates organised by outside bodies and to participate in joint musical and dramatic activities. In Belfast, County Armagh and County Antrim there are county youth orchestras which bring together pupils of different religious and social backgrounds. There are also many instances of combined carol services. An inter-schools drama festival is held every year in Londonderry, each school taking it in turn to be the host school. Usually, casts are mixed with pupils combining from different schools.

Community Relations Projects

One set of activities and projects sponsored by the Ministry's curriculum committee deserves special mention. The committee was set up over three years ago to encourage curriculum development and to advise on Northern Ireland participation in Schools Council projects. As a result of an approach by a few secondary school headmasters to the Minister of Education in the autumn of 1969, the Curriculum Committee decided to sponsor a Community Relations in Schools Project and appointed a Steering Committee of teachers equally divided denominationally to foster and supervise the development of the project. The headmaster of a Belfast secondary school, Mr. J. M. Malone, was seconded as full-time Director of the Project—a post from which he resigned on 1 September 1971 on his assuming an appointment in the Queen's University.

It is not proposed to describe in detail the progress of this project but to refer to the more salient developments and this brief account is largely based on reports by the Project Director. In general Mr. Malone concentrated on two main areas of education concern: the promotion of inter-school activities and curricular projects.

Meetings of young school leavers were arranged and conferences were held at various centres on the theme 'Preparation for Life and Work'. Community based studies were undertaken by two Protestant and two Roman Catholic secondary schools in Ardoyne: each group from a school carried out its own investigation and eventually what was produced was mounted in a single exhibition.

One of the far from original conclusions to emerge at an early stage of the project was that the development of good community relations frequently depends on improving society and its institutions. So far as the education service is concerned, this includes the provision of more and better facilities for education and recreation, both within the the school and in the district to which the young people belong. The most important contribution to the provision of facilities made through the Schools Project was the development of field centres. One example will suffice. In discussion with teachers of young school leavers in the Ardoyne area of Belfast the point was often made that it was difficult to find a neutral meeting place where pupils from the four secondary schools might mix freely. There was a ready response to the idea of a joint field centre and it was decided to rent National Trust property at Terenichol House, Ballyward on the shores of Strangford Lough. A joint schools' committee of teachers and senior pupils from the four schools was set up and a wide range of appropriate activities was organised.

In three secondary schools in socially deprived areas—two in Belfast and one in Londonderry—an additional member of staff was appointed to act as combined tutor and youth leader. For part of their time these tutors look after young school leavers—counselling, arranging group work, helping to provide work experience and so on—and for the other part concern themselves with those who have just begun work or unemployment. They co-operate closely with the youth employment service, youth leaders, clergy, probation officers and personnel officers.

Other successful ventures have included joint week-long conferences for boys and girls from all types of school at the Ulster Folk Museum. These courses were designed to lead to a deeper study of the realities

of community life through a study of the various facets of folk culture.

Residential conferences each lasting a week were held for pupils of all persuasions at Benburb Priory in County Tyrone. The general theme was 'Thinking of Others' and situations arising from the Schools Council's Moral Education Project were used. The following comments from pupils who attended the conferences were illuminating:

'The whole week was valuable because of the fact that we mixed religions together and everyone got a chance to express his views. This is the first time I have had the chance to do this.'

'Catholics and Protestants mixed with interest and the conference brought them together.'

'I have learned that Protestants are not what they are made out to be on television.'

'I would no longer be frightened to speak to a Catholic. Catholics are just the same as us except they worship differently.'

While there was certainly a place for a detailed examination of the curriculum—its explicit and implicit objectives, its emphases and omissions—the Northern Ireland Schools Project did not begin with such an examination but with an investigation of ongoing Schools Council curriculum projects to see if any had particular relevance to our problems. As a result, links were established with the Council's Moral Education and General Studies Projects. The Moral Education Project had a number of features which related it to our Community Relations project. Its aim to 'inculcate a considerate way of life' is one that is particularly apposite to society in Northern Ireland; it is designed for the 13–16 year olds, including the young school leaver group; it is appropriate to all levels of ability and requires a maximum degree of activity and involvement on the part of pupils. Members of the Moral Education Project team have paid a number of visits to Northern Ireland and local teachers have collaborated with them in preparing special material for use in our schools.

General Studies as a subject offered a promising approach to the curriculum. It is usually a non-examination subject, it is rapidly becoming part of the sixth-form curriculum of all schools and is an important element in further education courses. There was, however, a dearth of suitable material dealing solely with Northern Ireland. Advice was sought and generously given by the Director of the Schools Council's General Studies Project at York. Teachers from over 20 secondary schools and technical colleges in Northern Ireland collected and prepared material on the social, economic, political and cultural aspects of Northern Ireland and the General Studies Project team in York produced a kit including some 20 study units together with colour transparencies and a tape recording of Ulster folk song for use in the senior forms of secondary schools and in technical colleges. About a third of our secondary schools have bought a General Studies Kit and 22 schools and colleges have been selected as trial schools for evaluation of the material under the guidance of a small team of the Ministry's Inspectors. The Queen's University Institute of Education has recently assumed complete responsibility for the Schools Community Relations Project. As the former director has observed,

> the project chose to avoid tackling religious and political prejudice directly in view of the complexity of community relations, the

political implications of educational approaches to it and the uncertainty of parental support. Instead, it aimed to stimulate various kinds of action and initiative within and between schools which could contribute indirectly and in the long run to improved community relations. These included creating opportunities for teachers, parents and pupils from different schools to meet, giving special attention to the needs of young school leavers—particularly in socially deprived areas—encouraging the use of new methods of moral and social education and enabling teachers more easily to relate the education of senior pupils to their local social, cultural and political environment.

The task of evaluating what has been done is extremely difficult, if not well nigh impossible. There are no objective criteria readily available for measuring success in so sensitive and complex a field as community relations in Northern Ireland. It is easy to oscillate between hope and despair: at times we seem to capture a faint glimmer of the promised land; at others, we tend to wallow in the slough of despond. 'Faith', however, 'is the substance of things hoped for' and it is a steady faith coupled with a firm resolve that teachers have so admirably displayed in their attempts to heal the divisions of strife-torn Ulster.

With the introduction of middle schools, changes have been brought about in the age ranges of primary schools. This has meant the creation of an entirely new kind of school.

First Schools

MARTYN CLÉMANS

First Schools. We had better say what we mean. A First School is a primary school with an age of either five to eight or five to nine. It puts into practice the Plowden report's proposal for a three-year infants' course. The report had condemned the shorter course. 'Two years is too short to profit fully from the qualities of a good infants' school. In this period many children cannot establish social confidence and their slowly maturing personal relationships may suffer a severe setback, when they transfer to a new and unfamiliar junior school. This setback is especially characteristic of children in socially deprived areas who often enter infant schools lacking both social experience and the ability to express themselves. Similarly, there is overwhelming evidence that many children have not achieved a mastery of reading by the time they leave infant school'.

The National Child Development Study had confirmed this; in *11,000 Seven-Year-Olds*, Kellmer Pringle, Butler and Davie commented: 'A considerable number of children in this sample of 7-year-olds were described by their teachers as being either non-readers (about 3 per cent) or poor readers (about 24 per cent). An even larger proportion (almost half the sample) had not achieved a sufficient mastery of this subject near the end of their infant schooling to use it as an efficient tool for further learning'.

Susan Isaacs in America had also pointed out in *The Children We Teach* that the lack of continuity between infants' schools and junior schools accounted for a large number of cases of backwardness in reading.

The Plowden committee saw other advantages, not just in reading. 'A three-year course will allow teachers and children to work steadily without anxiety. It will give infant school teachers the satisfaction of seeing more results for their labours and of knowing that children have reached, before leaving them, a stage at which they can tolerate a change of school'.

The demands that a nine-year-old child makes on a teacher's knowledge, and the materials he requires is very much greater than that made at seven. This shows itself best perhaps, in science, an area in which many primary teachers are least sure of themselves. If we are to think of a subject such as science as a continuous line of enquiry it is vital for the teachers concerned with the nine-year-old to understand exactly what he is capable of in the way of scientific reasoning and investigation. At the same time we need to guard against the idea that experiments are ends in themselves, that they are something you 'do'. Scientific investigation must grow out of the children's experience of other things. Those teachers who have not taught nine-year-olds before are quite rightly concerned about the level of their own knowledge, for where knowledge is lacking it becomes impossible for the teacher to ask the 'on going' question which will give continuity to his

or her teaching. The result is that the flow of ideas to the child stimulating *him* to work is stopped at a vital point.

The organising of experiences round the activities that produce them Piaget has called *assimilation*. He regards this process as fundamental to learning and growth. Assimilation is constantly being modified by accommodation. In the experimental situation the child has to deal with an assimilative-accommodative interaction, learning and at the same time overcoming the resistance of the situation. Each child does this uniquely, at his own pace and in his own way. His inner world is his own, no teacher (or anyone else) can get inside it.

Informal or individual work if it is to be successful will involve children in making choices. These choices have to be within their capabilities at the time. It is an extremely difficult thing to identify a problem and then make the decisions necessary to solve it; very tempting to think up a problem to fit an answer you already know, or know you can find. Children like the rest of us will take the easy way out in their projects as in any other learning situation, they will copy interminably from encyclopaedias if we let them.

Because of the age of the children at the top of the First School, integrated teaching and individual work need to be much more carefully controlled than in the infants' school if it is to be significant in terms of learning. Flow charts of ideas become not luxuries but vital tools in this situation if the teacher is to see where he or she is going and above all to keep the children's ideas moving outwards rather than circling round a fixed point. The other important development that First Schools have to cope with, anyway in the early stages, is the difference in outlook between teachers whose experience has been of infants' schools and those who have taught juniors. There may be disagreement on degrees of formality and ways of teaching different age groups. In First Schools there is a much greater range of methods used in teaching than is the case in either an infants' school or a junior school. You can teach an eight-year-old much as you teach an eleven-year-old, and a five-year-old much as you teach a seven-year-old, but two extra years, if the children are to be stretched intellectually, means five-year-olds and nine-year-olds must be taught differently. It may mean that there is a tendency for polarity to develop in the staff-room between those who teach the lower and those who teach the upper age groups.

In First Schools there is an increased need for teachers to think about the areas of their work in which they are considering aptitudes, abilities and skills, and those areas in which they are transmitting beliefs and values: personal attitudes go a long way in influencing children. There is an interesting film called *Methods* made in Hungary in which imposed discipline, self-discipline, and complete freedom were used with a group of six-year-olds in a situation of making models with clay. What is significant about the film is the children's attitudes *to each other* produced by the three methods, as well as their attitudes to the teacher. Respect for peers and for the teacher was generated only in the self-discipline situation.

In First Schools the eights and nines are going to start questioning what is taught and teachers will have to question what in fact comes out of their teaching as well as what they think comes out of it. For instance in some nursery schools many teachers have thought they were doing far more about language than in fact they were. We have

to provide more effective situations that link up rather than just talking to children about things that have very little additive effect. Unless someone talks to a child in a relevant way when he is in a particular situation—for instance playing with a collection of different kinds of materials—he will not make the links between words, the images on which the growth of knowledge and of language depends. Aids and aides can provide some of these vital links—others will have to be seen and taken further by the teacher.

How much or how little specialist teaching there should be in the First School is an open question at the moment. One suggested way of solving it is not to have specialist teachers at all but to build up a staff of people competent in two or three subjects and capable of advising other teachers on the problems they encounter. These teachers would be able to take their speciality with their own groups and also be able to give some specialist teaching to, for instance, the nine-year-olds in a particular subject, such as French, or children gifted in music. We bring together slow-learners, why not classes for the more gifted too? In the 5–9 school we may have to pay much more attention to high ability if more children are to be able to work on their own. Tape recorders, film strips and resources of this kind can be used effectively by quite young children. For individual use in this way portable TVs are at times better than magnificent 24 inch sets. Children respond very well to visual aid material *made by their own teacher*. This can help them develop their language much more effectively than always using text books. The tendency is to think that because you have taught a child something in one context he will transfer that learning to another situation. For instance, a child will talk in sentences with his teacher and then revert to grunts and gestures when communicating with his peers. Adults, other than teachers, can help bridge these gaps, and the presence of helpers—whether they are parents or otherwise—is valuable.

Schools still vary greatly in the way they treat parents. Some actively encourage participation up to and including teaching, others just as actively discourage all approaches. Those schools in the middle ground between the two extremes—most of them that is—tend to think 'What can we find parents to do that will help us', rather than 'What skills do parents have that can supplement our own as teachers?'

The abilities a teacher needs to work in a First School are probably more varied than were required in the two or three year infants' course. Many courses in the colleges of education now emphasise child development over the three-to-eight age range and this is a good thing. To cope with the re-organization of schools the DES runs many practical courses, and occasional conferences on the organisation of First Schools, and is also making a film about the work of First Schools. The conferences are over subscribed.

What will the First School of the future be like? It will combine the infants school's relaxed, friendly atmosphere with the junior school's vitality. It will be a true First School, taking the age range three-to-eight—many authorities are planning for this now. It will be a school which centres on the child, a school which is dedicated to asking—What does each child need? What is he interested in? What is he ready for? In such a school the teacher is no longer the giver out, the child the taker in, they are a partnership; teaching gives way to helping to learn.

I hear. I forget I see. I remember I do. I understand

Trends talks to Stephanie Connell, the deputy headmistress of an infants school in Newham, about the use of audio-visual aids in the teaching of young children.

Audio-visual Aids in the Infants School*

TRENDS: *The starting point I suppose is why one should want to introduce visual aids equipment, such as tape recorders, cameras and various commercial equipment with very young children. What can it give a teacher that he or she cannot get in some other way?*

STEPHANIE CONNELL: Aids can help in a number of ways, particularly where there are very large classes. They can take some of the pressure that comes from having children of very different abilities in one class. Aids, if properly used, allow you to separate for a time children of high or low ability and let them work together. One mustn't be too formal about this but it is a possibility. You can also use audio-visual aids as a means of motivating a particular child, perhaps where all else had failed, perhaps where you want some enhancement.

Electronic equipment also gives the child an early benefit of the age he or she is living in; acquaintance with technology is useful in understanding and mastering one's environment today. It is part of the teacher's job to look at new ideas and new equipment produced for educational use and to evaluate it; we cannot afford to stand still in methods or ideas.

TRENDS: *How, as a teacher of infants, do you start off using aids? Do you say—'This child needs this' or say 'We've got this equipment, what can we do with it?'*

CONNELL: You've obviously got to look at the child's needs first. As a teacher one should already be aware of what any particular machine on the market can give.

Teachers' centres can help immensely in familiarising teachers with equipment that exists and showing them what it can do. The trouble is, you know, many teachers, particularly women, are rather frightened by technology. Anything more complicated than putting a record on they think is far beyond them. Many seem to think they are in danger of losing their femininity if they actually learn how a tape recorder works. All too often it's the men on the staff that everyone rushes to, to mend a fuse or fit a new plug—jobs as simple as that. But if teachers can see—by going to courses or visiting other schools where equipment is in use (and we don't visit each other half enough in this pro-

**This is an edited version of a tape-recorded discussion between Mrs. Connell and Martyn Clémans, the former executive editor of Trends.*

fession) then a lot can be learned. We talk all the time about learning by doing but we don't do it ourselves.

It is very useful if you can have one member of staff with a special responsibility for audio-visual aids. It then becomes possible for others to see what can be done, and for demonstrations to be given—not necessarily formally, probably better not; it can be made a talking point during lunch.

TRENDS: *What about financing—some of this equipment can be very expensive.*

CONNELL: That's one of the roots of our problem in the infants school. Capitation allowances are very small. Projects are far beyond the reach of most infants schools unless the PTA helps. Cassette recorders are within reach however; these have the advantage of portability and ease of handling—small hands cannot get looped up in tape using them. Cameras, the modern automatic ones, have been very much neglected by infants schools yet there are some wonderful things that can be done with them by young children. I don't mean wonderful pictures of course but extensions of experience. It is surprising how much reading and writing can be stimulated when the characters illustrating a story are people you know. What we haven't been able to do is to use ciné-film in this school. Financially it just hasn't run to this, but there is no reason why one couldn't extend children's appreciation of the visual world in that way. The approach would have to be very unstructured of course.

TRENDS: *How do you see the use of educational technology developing as far as the infants school is concerned? Do you think we are likely to see a big expansion in the next few years?*

CONNELL: Obviously more people are likely to see the value that can be gained by using equipment than are doing so at present. I would divide aids into two groups: things that can give rise to spontaneous work—and which don't need a lot of planning and progression—tape-recorders, cameras and TV; and aids which do need structuring—mostly language apparatus, things like the 'Language Master', and possibly the 'Talking Page' and 'Talkmore' kit. Both groups of aids need lots of thought on the part of the teacher but the second needs a much more programmed approach than the first.

It is essential for the teacher to produce her own materials —'software' to use that dreadful word. The producers of mass kits don't know our children. Their material can never be more than a starting point for us. The ideal way to use aids is to make the software specific to a particular child or group of children. The children can then progress through this and the teacher can follow closely where they are going. Mechanical language aids are better used with very small groups—one or two children at a time—the rest of the class can be off doing something else.

TRENDS: *Doesn't preparing material for visual aids throw a lot of work*

on to the teacher? Is it always possible for them to cope with developing programmes?

CONNELL: There isn't any reason why any infants teacher cannot produce software for electronic aids for use in say the teaching of reading—after all it doesn't need artistic ability of a very high order. In fact too much art can obscure the message. Programs have the advantage of being re-usable which often other material made for classroom use is not. These programs also have the advantage of being capable of use by another teacher.

We have found that once teachers have used equipment for which software is provided by manufacturers they very quickly start to want to make their own materials. Basic kits in the infants school, such as those for colour, shape and number, single phonics, language master sets of cards for developing word-building and vocabulary are essential. When teachers are working around a topic in their own classroom they want to make materials that are relevant whether it is for use with equipment or in some other way. The material produced in this way can be added to a library of software and kept for future use, although of course its life is not indefinite.

TRENDS: *What do you think should be the minimum amount of visual-aids equipment in an individual school in a practical sense?*

CONNELL: Well it ought to be possible to provide a school with a 'Language Master', and 'Audio-page', a slide projector and four or five cameras. Every classroom could have a cassette player if not an actual recorder. There could be one or two master recorders in the school available for use: I think it would be better to have all recording machines but this may not be possible because they do cost twice as much as the play only machines.

Playback equipment can be used by quite young children to listen to pre-recorded stories using ear-pieces. We have found that these single ear devices are better than headphones for the very young because they seem to like to keep one ear on what is going on around them. We have noticed that when very young children put on headphones which cut them off completely in an auditory sense they become very distracted and worried.

TRENDS: *Don't you need to be careful of infection in the use of this kind of ear-piece?*

CONNELL: We haven't found this a hazard provided you make sure the equipment isn't used by any children who have ear discharge—and a teacher will always know who these are. A useful way in which recording equipment can be used is when a particular child comes to you when you are engaged on something and wants to be heard read. You can actually increase their motivation if you let them record the item and play it back to you later. Also from a teaching point of view this is valuable because it is immediately clear in a recording which words the child is hesitating over, and is unsure of.

TRENDS: *What kind of attention span can you get from the very young age group?*

CONNELL: I found it useful to start off with the Syncofax, the audio-page. This plays for four minutes, and if you use just a single picture—nothing else, no writing at all—this is a good starting point. One has to resist the temptation to cram too much onto one page at the beginning. You can tell a story about the picture—which the child listens to—all the time drawing their attention to different aspects of the drawing or photograph. Structured exercises, done on the 'Synchrofax' sheets come later. I have also tried doing this with a picture book and a tape recorder, synchronising the two but it is too much for young children to work with—there are too many intrusive factors. We have also tried to get them working with models—such as a farm—while listening to a tape recorder with some success. Success I mean as far as learning went. I also see the use of this kind of apparatus, the operating of it and sharing of it with other children, as part of socialisation.

TRENDS: *What kind of ways can photography be used by the infants school?*

CONNELL: By using the camera you can increase the child's perception and appreciation of his world. You also enhance his fine muscular control. We have tried Polaroid cameras but they aren't very successful with young children because pulling out the prints is difficult. We get our developing done by the local secondary school and they give us a very good service. We use black and white of course because of cost. Colour is very good to use with young children, but I find they will look perhaps more carefully at black and white photographs.

There are lots of things you can do, building up a picture dictionary is one—you can get the children to photograph nouns like dog, cat, flower and so on.

TRENDS: *I never thought about photographing a noun. How do you photograph an adjective then?*

CONNELL: Yes, that's more difficult, isn't it?
The basis of all that I have been saying has to be child development, doesn't it? The teacher has to know, from experience, the way in which children progress; she has to gear not only all her teaching but the way in which she uses audio-visual aids to that process. Programming helps the teacher very much with her own insights. She has to organise her thinking and her teaching much more strictly, and in the integrated day, so called, things can get very unintegrated at times.

The 1972 UN Conference on the human environment placed considerable emphasis on the role of education in combating the degeneration of our world. This article discusses the ways in which environmental studies are being introduced into primary and secondary schools.

Conservation and the Schools

W. K. BEAL

W. K. Beal is an Inspector with National responsibility for rural and environmental education.

Prophecies of doom are now familiar to us all and, although the speed of approach of disaster, and indeed its inevitability, are keenly debated, the evidence of danger cannot be ignored. To keep pace with the demands of a rapidly increasing population and, at the same time, to raise its standard of comfort, industry has to produce more and more, drawing more and more heavily upon stocks of minerals, such as fuel and metals, upon water resources and upon the soil and its products. At the same time waste is accumulating to a dangerous extent, already threatening the existence of living organisms of whom man himself is one. Unless man can intervene in this process far more powerfully than he does at present, it must continue until it finds its own balance, through famine, disease and war, between producing the benefits of technology and losing the quality of the environment in which people live.

The United Nations proposes a programme for intervention. It acknowledges ignorance of the production capacity of the biosphere and of the ecological relationships that govern it, and it admits that, while the most obvious short-term remedies are often unsuccessful, very little is known about the long-term effects of 'preventive and corrective action'. The programme, mainly one of research and assessment, stresses also the necessity for education:

1. of those who will be involved professionally in the management of the resources of the environment.
2. of the general public, upon whose understanding of environmental problems will depend the effectiveness of legislation.

Education in the Environment

The following statement of objectives has found wide acceptance both here and in other countries:

> Environmental education is the process of recognising values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelatedness among man, his culture and his biophysical surroundings. Environmental education also entails practice in decision-making and self-formulating of a code of behaviour about issues concerning environmental quality.

Two aspects of learning are suggested here, of knowledge of inter-relationships between man and nature and within the web of nature itself and practice in making judgements based on this knowledge.

Knowledge of inter-relationships may cover a very wide field of study, not only of plants and animals in their natural communities but also of

man in the society and physical environment he has created for himself; its detail will be increasingly revealed as pupils develop. The judgements they make will depend upon what they consider to be worthy of preservation and their appreciation of the beauty and complexity of the living world.

It goes without saying that much of this enjoyment is derived from being out-of-doors and is intensified by having a purposeful job to do or by a pursuit such as canoeing, climbing or fell walking. Many, who in such ways have already come to love the countryside, have learned the need to find a balance between man's material needs and the damage to the landscape that they cause. Mere exhortation would have been less effective and, by stressing the negative aspects of spoilation and pollution, might even have produced a contrary reaction.

Direct Experience

Stages in growth of responsibility can be seen clearly in very small children brought into contact with living material in schools. The hamster or family of gerbils in a classroom is at first a matter for wonder and excitement and later something to find out about. An indoor greenhouse has been used to give every child a plant to care for, and many schools have small garden plots, of about the size of a paving-stone, each belonging to an individual child and fiercely defended against environmental crises brought about by stray dogs, the carelessness of others, or plain bad husbandry.

In one junior school, children found part of their proposed cross-country course in a narrow lane impeded by a deposit of old bedsteads and perambulators. When they set about removing it some of the occupants of nearby houses came to help, admitting, with some shame, their own responsibility for the rubbish. Since then these children keep watch and complain bitterly to the culprits or even to the police when more rubbish appears—but it is significant that this occurs less and less often.

Learning from the environment has been a key note of primary education since the days of the 'Object Lesson' and the development of biological studies in schools owes a great deal to schoolmaster-naturalists. In towns and countryside alike young children observe and record the flow of traffic, the movement of people, sources of food, water and warmth, and they are taught to identify plants and animals and to associate them with the habitats in which they are found. Study of this kind demands a great deal of time but seems to bring commensurate success in terms of the quality of the work produced and the zest with which it is undertaken. It can, however, be costly and difficult to organise and thus there is a case for better use of the school grounds and the immediate neighbourhood, to support the work carried out farther afield and to relieve the over-use of field study centres.

In both primary and secondary schools examples of using school grounds for ecology may be quoted. In one there is a small nature reserve with a pond where wild duck nest on tiny islands, and in another an artificially created swamp fed by a stream where a water vole has taken up abode in the bank. The facilities of rural science departments are increasingly used, not so much for training in garden crafts as for experimental work in which plants and animals are studied under conditions that can be carefully controlled—an area of explora-

tion intermediate between the countryside and the laboratory and, sometimes, an example of new and improved methods of crop-husbandry or livestock-keeping. In both town and country schools where high standards are well-established there is often significantly less vandalism and it is not unreasonable to suppose that personal responsibility for the well-being of plants and animals may be a firm foundation upon which to build an understanding of the problems of environmental conservation. Many colleges of education and colleges of agriculture set a splendid example by the use of their own grounds for ecological studies: neighbouring schools may share their facilities. Not many schools can keep large farm animals but at several colleges children come to make detailed studies, often inspired by visits to commercial farms, of the adaptation of domestic animals to the process of converting energy into food. Nearly all the colleges of education offer main courses in geography which include environmental studies and over forty offer main courses in rural or environmental studies; these, and many others, include such work in their curriculum courses.

Several colleges of agriculture as well as colleges of education make provision for training in the design and careful use of nature trails. A growing number of young teachers have had experience of individual enquiry into the problems of man's environment and have been trained to help children to do the same at a simpler level of understanding. Many of them have added to their professional equipment qualifications in mountain leadership, canoeing, sailing and the like in order to take classes safely out-of-doors, and there is a growing awareness of need for in-service training of this kind.

Environmental Problems

At the secondary stage knowledge of the environment begins to fall into recognisable patterns so that ideas like those of successional changes of vegetation lead on to a view of continuous change in plant and animal communities and to an awareness of man's intervention, for good or ill, in naturally occurring chains of events. It is this kind of knowledge on a world-scale that is considered by the General Council of the United Nations to be seriously lacking and every nation that co-operates in the United Nations programmes will have its own way of helping young people to acquire it. Although ways and means may be subject to debate, the objectives in terms of the qualities of the young adult seem fairly clear:

1. He should have learned from detailed study of some of them that communities of living organisms, almost invariably of people in association with plants and animals, do not remain static but tend to follow a succession of changes that are to a greater or lesser extent predictable in spite of checks and temporary states of balance that operate from time to time in the web of nature.
2. He should be aware that man alone can consciously intervene to change the direction of such processes, to enhance the community of organisms or to hasten its degradation—and he should have some experience within a locality he knows of planning for environmental conservation.
3. Perhaps above all he should have a vision of the qualities that enrich the purpose and enjoyment of life and be able to assess his own life and that of others in relation to it.

The resources upon which the quality of life depends are neither

inexhaustible nor equitably shared. Schools have thus to become aware of the urgency of the demand that is made upon them.

Courses in Schools

All over the country there are schools that have successfully brought environmental study into the curriculum. Learning from the environment has been developed more generally in primary schools, where subject boundaries are less rigidly drawn, than in secondary schools where difficult problems of organisation become even more acute as pupils approach the hurdles of external examinations in a traditional array of subjects. Although it is argued on behalf of each one of a number of subjects that it could make a useful contribution to the study of the environment there are few, if any, who would claim that traditional subjects, pursued separately, will help pupils to understand the important issues that face them. It is not enough to hope that most boys and girls, without well-planned integration of courses, will be able to piece together from their work in geography, history, science, rural science and religious education, a coherent picture of man in a competitive and constantly changing environment. Courses of environmental study must have clearly defined programmes of work; their objectives must be understood and accepted by both parents and the pupils themselves. There are moral judgements to be made and young people need practice in weighing the argument for one course of action in preference to another as well as training in the art of informed discussion. Even more, they need leadership in distinguishing between decisions based on sound reasoning and those that are merely expedient. Some teachers may solve their problems by forming links between established subjects, but there are many signs that interest is growing in separately identified courses of environmental studies.

Staff Organisation

In those secondary schools where environmental study seems to be successful, two ingredients are usually found—the co-operative effort of a group of teachers and the emergence of one of them as a co-ordinator and leader.

Thus in one school the leader is a geographer designated as head of a department of environmental studies. He has the active support of a group of his colleagues who include, among others, a rural studies teacher and a scientist, and a great deal of the work takes place out of doors. This school has its own residential field study centre whose use is planned within the timetable and very fully documented.

In another school the head of the physical education department organises a 2-year course in map reading, mountain safety, and the techniques of walking, climbing and handling boats. This is regarded as a foundation course for out-of-door study that reaches into almost every branch of the curriculum, and is at present involving some of the older pupils in making contributions to a real-life consideration of the siting of a new reservoir. In this case it is the headmaster who co-ordinates the environmental studies in which most of the staff are involved.

A third example is of a school with a 25 year tradition of horticultural study. Here it is the rural studies department itself which has evolved and enlarged its sphere of interest to include the continuous study of three farms and the management, under professional guidance, of some

60 acres of forest. The rural studies department of this school has established groups of trees and shrubs in the garden, and has reproduced out-of-door habitats such as tree nurseries, a wild garden and areas which differ from one another in soil acidity and dampness. The emphasis of the work is now upon scientific investigation of environmental factors rather than training in garden crafts.

Urban Schools

Eighty per cent of people live in towns and even a larger proportion of secondary pupils attend urban schools because, even in rural areas, they are usually found in centres of population big enough to support them. Schools are often surrounded by other buildings and a very large number of them have been increased in size within the last few years and have lost the land they would have used for out-of-door experimental or ecological work. The urban aspects of environmental conservation reveal problems that are as pressing as those that have already been mentioned. They involve the organisation of space in urban areas, and the quality and convenience of urban life. They may lead to the study of such phenomena as the daily ebb and flow of the working population, the effects of living in tall blocks of flats, and their consequences for family and working life, and the processes of change that influences urban morphology. In the work of schools, however, the interdependence of town and country should not be forgotten—the flow of fuel, food, and water into the city and the outflow of manufactured goods, of waste products and of people themselves at holiday times. Inter-penetration of urban and rural environments is recognised and deliberately extended in the greatest cities like Birmingham, Manchester and Glasgow by the work of parks and planning departments on behalf of school children, the establishment of centres for rural studies and small garden plots for experimental work—the latter even in asphalted playgrounds. There are, moreover, few large urban authorities which do not take care to provide children with some experience of living in the country for a while. Conservation of the countryside depends to a very large extent upon successful education of the urban population: an understanding of the nature of cities is just as important for those who live in the country.

Examinations

Considerable impetus was given to environmental studies by the introduction of a field-study element in sixth form examination syllabuses in biology and geography. The Field Studies Council over a period of nearly 30 years has set up nine residential centres and one day centre which have not only met the needs of schools but also extended their services to university faculties and individual naturalists. Many schools now have their own centres in cottages and disused railway stations and many have been established by education authorities and independent bodies.* So extensive has been this movement that it has underlined for many teachers the tremendous influence of examinations upon curriculum development. Hoping to encourage further growth, several groups of teachers have submitted proposals to examining bodies for syllabuses in environmental studies. At the level of the CSE some of the older rural studies syllabuses have been

* See *Directory of Centres for Outdoor Studies in England and Wales*, published by the Council for Environmental Education.

modified and two of the Regional Boards offer examinations in environmental studies or environmental science. At the GCE ordinary level there have been similar changes in emphasis in biology syllabuses and one quite new examination is offered, 'Rural Environment Studies'. Two syllabuses proposed for GCE at Advanced level* have attracted keen interest and one of them has now been approved, for a trial period, by the Schools Council. Career openings in environmental conservation, although restricted at present are growing steadily. Although examinations and career opportunities may help to establish environmental education in the sixth form, there is evidence that the courses themselves, directed towards the needs of society, are very much in line with what is felt by students to be important and a sound basis for the work they are tending to select at university. It is probable that many pupils in newly enlarged sixth forms will find an environmental studies course of value whatever their main subjects may be.

Resources

Given that the material for study should be drawn from the environment itself, there remain the problems of taking classes out-of-doors and engaging each individual in an active programme of observation and recording. The former are problems of organisation and cost that are already solved in many ways. Some schools have a sizeable motor vehicle of their own, while others spend less time in travel and more in residential centres. What is not generally realised is the extent to which the school estate and its immediate neighbourhood can be used for ecology, or the volume of material for study that, with careful planning, can be gathered from a small number of excursions. A great deal of help is available to teachers who have little experience of out-of-door classes and are naturally hesitant to move away from the security of the classroom. For teachers of younger pupils the published materials of the Nuffield Primary Science project provide guidance and case histories, and the Nuffield Secondary Science project materials published in September 1971 devote two of their eight main themes to the purposes of environmental conservation, and again offer detailed guidance to teachers. The Schools Council 'Environmental Studies Project' for pupils from five to thirteen is nearing completion while 'Project Environment' for older pupils is in its trial stage.

The Town and Country Planning Association publishes for schools its 'Bulletin of Environmental Education' and many of the Country Naturalists Trusts publish journals. *The Council for Environmental Education provides an influential link between the professional and independent bodies concerned with the environment and the organisations representing both the professional and specialist teachers.*

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* *'Environmental Studies, the Construction of an "A" Level Syllabus'* published by National Foundation for Educational Research.

The middle years in an all-through comprehensive school constitute a difficult and challenging period. Decisions have to be taken about social opportunities, subject choice, the range of the curriculum and the prevailing methods of teaching. Each pupil must settle to a programme of work on which career and further education prospects may depend. In this article experiments, ideas and organisational principles are discussed by the headmaster of such a school.

Dilemmas At 14 plus

ROY NICHOLLS

Roy Nicholls is Headmaster of Greenhead Grammar School, Keighley, Yorkshire

There is a trend favourable to flexibility and informality in primary education which is likely to continue in recently established middle schools. Such forms of organisation as the West Ridings '9–13' school, introduced in the wake of Circular 10/65, have made it possible to extend in a natural way the best of primary practice into lower secondary teaching. In many 'all-through' schools the 11–14 age range has been the point at which experiments and new schemes have been carried out, for instance, combined humanities courses, Nuffield secondary science, European studies, integrated design and craft courses. This move towards integrated or inter-disciplinary courses, albeit to a large extent a reaction against traditional departmental organisation, has caused a good deal of fresh thought to be directed at the objectives and content of secondary education. These new departures have been accompanied by developing techniques of block-time-tabling and team-teaching.

Many such experiments have been successful and well documented; others met with failure and went the way of a number of driverless bandwagons. For this reason, most heads would welcome a more systematised approach made possible, for instance, by the Integrated Studies Project based at Keele, which is issuing new material for the 11–15 range of pupils. For me there are three interesting points which arise:

Is the level at which the material is pitched right for middle secondary pupils? When we invested in the Humanities Curriculum Project materials for the 4th year, my staff reaction was that it was excellent stuff for 6th form general studies.

Is the work likely to be rated highly enough by heads and their heads of departments so that they do not allocate less experienced junior colleagues to tackle the more unpredictable teaching groups?

Is the work rated as sufficiently taxing to offer it to the abler students? There is some reason for thinking that it is conceptionally harder to tackle well an integrated course than a more prescribed one. Has the project material been tested only on the less able pupil? Are many schools not likely, especially under the flag of ROSLA, to plunge cheerfully into marshland, fielding second-rate hacks and blunt plough-shares? Is there a satisfying answer to the anxious parent

who complains that his modestly-endowed offspring is being over-experimented upon and regarded as expendable?

Even if we accept that it is worthwhile to trade in some formal skills in return for priceless spontaneity, initiative and flexibility of mind up to 13, it is still proper to challenge whether this is the correct emphasis for those in the 14–16 group, given that so many are still faced with 16+ examinations which make formal demands and test skills.

In my view problems may be piling up at the 14+ stage and the questions I have to answer are these:

Can there be common elements of curriculum in a comprehensive 4th year?

Is mixed-ability teaching possible or desirable at 14+ or above?

Should pilot schemes of general studies programmes become established and eventually expanded?

Should teachers resist examination pressure or is it, given present society, positively misguided to do so?

In genuine all-ability schools what achievements have been recorded in tackling the dilemma of the social and academic organisation in the 14+ year?

Can we redress the tendency towards giving choice and more choice in curriculum when there are mounting pressures on us to keep as many doors open as possible for as many students as possible?

The middle forms of comprehensive schools, notwithstanding the joys and perils of ROSLA planning, ought to claim much of our attention for they act at once as:

The 'last chance' for the potential school leaver.
The consolidation point for the hesitant middle of the roader.
The essential pivotal and basic course for the future sixth former.

It is indeed a tall enough order to make the above provision adequately but it is even more challenging to think of such varied provision in relation to any common elements of curriculum at this fourth year stage. In common with R. Hargreaves (*Trends* No. 27, page 49), I believe that a small current of general work is both possible and desirable at 14+ and the only hope of success here lies in the introduction of courses where purely academic demands are minimal and some genuine common experience on the part of students can be expected. The subjects that seemed most likely to afford this in my school were music, art and drama and some opportunities for practical science were suggested as a fourth alternative. From this grew a 14+ general programme which has recently been tried out, a brief account of which appeared in the *Times Educational Supplement* on 26 May last. In short, two teachers from each of the four departments concerned were allotted a double period per week with a form group containing students of all abilities. Wherever possible students were given their first choice of course and later they sampled a second and even a third as they moved round en bloc. Clearly there were difficulties but the general wish of staff was to repeat the experiment in a second year, though not to extend it to fifth-year pupils at present. Now that two years' experience has been gained it seems that we shall retain but further modify the courses in the light of current staffing and resources, hoping to keep to as many of the previously agreed conditions as possible. These conditions were:

(a) groups to be of moderate size (20+)
(b) a double-period only to be attempted
(c) some financial support to continue from central funds
(d) 'topic' or 'team-teaching' to be adopted only where it seemed natural and possible; clearly it must not be imposed.

This experimental scheme has been carried out in an expanding 700+ Upper School, with a full-range ability intake of 300+ at 14, where on average 190 students take GCE/CSE annually at 16+ and with a sixth form of over 230. For me, the work has been sufficiently successful to answer positively the first three questions posed in the list that appears above.

As regards the fourth issue, that of examination pressures, I believe I have to provide my students with currently-acceptable professional tickets to enable them to proceed to employment or higher education, but that does not prevent me from being extremely anxious about the overall situation which at 16+ can be every bit as bad as at 11+. In some schools nothing is taught that is not externally examined, but at least with the coming of comprehension (not always equated with the dawning of intelligence!) more of the school population seems likely to have an unexamined portion of the working week, even though there is pressure from some quarters to cover everything and everybody with CSE. Even a new common examination at 16+, whenever it comes, is unlikely to be taken by all in every subject. One would argue I suppose that this is a world in which carrots are needed, if only as a stern reminder that the rat-race is a reality, but I for one would be saddened to feel that it might no longer be possible to ask a youngster to do anything for the sheer pleasure of it, (even without overtones of community service) without incurring the risk of an anti-social gesture or references to one's 'knotability'! Are not we ourselves responsible for the camel-like demeanours of so many of our teenagers trekking along at 15+ in pursuit of what many teachers must regard as false values? Do more examinations mean better education? This is not just a problem for students but also for parents; if schools press O-level exam subjects on their charges, the home cannot really be blamed for endorsing those implicit value-judgements of the school.

Over-loading or cramming at 14+ may be a real danger but there are other social considerations we should examine. The social deprivation of students can be a hidden worry, for we are not always as aware as we should be how much our working week has been conditioned by examination courses. Not so long ago we put our students in forms according to the courses taken, but of course there are fewer 'Latin forms' in grammar schools and fewer 'commercial forms' in technical and modern schools now that we can 'set' our students. Yet even a system of 'sets' can be misleading or divisive; to be in 'top' or bottom sets throughout the week can recreate the 'elite' or 'sink' of a form system, and to be moved frequently in almost all subjects can result in random groupings so that no sense of belonging is felt. How are we to cope with the GCE student, the CSE candidate and non-examinee? Some years ago we tried a banded scheme in which it was hoped to shade off student groupings so that overlap in abilities could be taken care of and transfers arranged where necessary. In fact, the 'bands' solidified and developed into GCE/CSE/non-examination sections as under a selective system and we were rapidly becoming three separate communities under a so-called comprehensive roof.

The next step was to regard our new intake of 300+ students as two 'blocks' of 150, each reflecting a full range of student ability and social cross-section. These 'blocks' are proving more acceptable than the previous coagulating bands (since it had taken only one item of difference in curriculum to prevent transfers between bands) for each 'block' contains a fair range of options and sets in parallel. A comprehensive school will, of course, have to accept that it cannot force young people together, but for me, there is a good deal of difference between such a doctrinaire approach and a school organisation that actually prevents social mix by contriving a situation where the inmates go their separate ways; some schools' organisation appears to have been specially set up effectively to prevent students meeting their contemporaries.

The Block system of options at Greenhead combined with the mixed-ability form grouping for games and general programme is an attempt by one school to recognise the differences between students and at the same time give them common worthwhile experiences. Have any other schools attempted this synthesis? I should be glad to know of any parallel experiments or adopted systems for I think this 14+ question goes to the heart of the comprehensive issue. If a school is 'banded' it can so easily become bilateral, for this can be achieved by simply putting in a 'Newsom' course parallel to a system of exam options and keeping them separate! Is my contention that a comprehensive school should give 'common experience' too doctrinaire? Don't we profess and practise this philosophy at sixth-form level? If we do not subscribe to either ideal at 14+, why should students suddenly consider it valuable and relevant at 16+? A paler version of comprehension is to offer a wide range of courses and be less concerned with relationships of staff and student, and student and student. Are we not thus actively promoting future social divisiveness in industry, commerce and the professions?

The specialist/generalist argument is sharpened at this stage, because there is still plenty of evidence that the choices made at 13 or 14 are having the effect of channelling students into 'sides' in the 16+ years. This polarising process was seen clearly in the languages/science arrangement which tended to divide the brighter bunch of pupils, in some cases it was argued irrevocably! (I have little time for those who dodge the issue by cutting down or eliminating creative or practical subjects.)

Many could support this unashamedly and claim that only in this way could study in depth be achieved and that anyway time is short, both at this point, and later, because of sixth-form 'A' level pressures and the three year degree course! The loss to either 'side', by forcing premature choice, is not always conceded. Yet requests to swop courses in the Sixth are quite common and re-alignment is now a common student experience at many universities (not just Keele), at the end of the first year of higher education. I am personally in no way alarmed by this trend and in many ways colleges and universities have shown a better attitude in coming to terms with this problem than have schools. However, there is every reason for us to sympathise with the dispenser of the 14+ prescription for this issue is tied up with my final point—the basic question of 'choice' within the curriculum.

Stanley Cramer, writing in the Summer 1972 issue of *Further*

Education (CRAC), takes us to task in his article on Vocational Guidance: (A Cross Atlantic Critique) as follows:

'Until comparatively recent times, there was very little need for guidance in England because almost all decisions were institutional. For example, the schools determined who would proceed to what type of education. Individual decisions existed for a small minority of the student population, but even here constraints were such that the individual's degree of freedom in making that decision often presented him with little more than a forced-choice situation.

In America, obversely, vocational guidance decisions are largely individual. Students have much greater freedom of choice and must take responsibility for their own decisions (or those of their parents). For instance, the pervading American philosophy is that students have a right to fail.'

This is surely an over-statement of the case. Indeed, for some twenty years we have experienced a change of attitude on the part of many schools towards their clients. I would imagine that few schools still adopt the post-war attitude of 'take-it-or-leave-it' concerning curriculum. Both the Crowther Report, pointing the 'alternative path', and more recently, the Newsom Report, encouraging the 'cafeteria' approach, have urged us in this direction. Schools have less and less 'prescribed' work and more and more 'under offer'. But when the stage is reached of giving free options for all (except English, maths and possibly PE), we are faced with a back-tracking operation because of the dangers of premature over-specialisation. From the philosophical point of view a lot of heads would support this trend, and many of us would welcome its continuance at the 16–18 stage, but in practice there is a real professional dilemma facing us. Having for a number of years sold our courses as varied and flexible and tailored to the individual, now we are likely to have to retrain our public to accept as optimum a more stringently prescribed curriculum so as to keep open as many career prospects as possible. Our 'public', which in this case consists of students, parents, career advisers and employers may think it droll to see us stand on our heads! And what of the argument that a student works best at what he likes and at what he has chosen rather than what he has been made to do? Perhaps I am overfearful or guilty of exaggeration, but surely the next few years will tax the ingenuity and resources of heads and staff alike and at no point more pressingly than at the 14+ stage.

The author of this article, now a headmaster, looks back on his experience in 1947 when the leaving age was raised to fifteen, and forward to RSLA in 1973.

RSLA 1947 and 1973

H. G. TUCHLER

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Twice a week some 50 4th-year boys and girls (half the age group) of this school go out to hospitals, homes for the elderly, play centres, community centres, individual houses, etc., to assist with various schemes or to help people in need. They make their own way from and back to the school, pay their own fares, in many ways use their own initiative though their activities are, of course, carefully organised, prepared in advance, and continuously (though unobtrusively) checked by the teachers in charge. Back at school logs are written up, case studies worked out, impressions put on tape, and discussions held: the pupils' experiences are being followed up in their own right and, where appropriate, channelled into the more traditional subjects.

Over the whole week practically every 4th-year pupil, from the less able to the more academic, is involved, and the activities overspill heavily into the youngsters' spare time: some give up parts of their evenings, others parts of their weekends, and it is now inconceivable that the scheme would come to a standstill even during the longest holiday (though during such periods its scale has, of course, to be reduced): you cannot look after people during school time and fail to be concerned with them during vacations. We intend that these community service activities which have been developed over the past four years should be intensified and become part of a wider 'core' course when the school leaving age is raised next year.

For somebody like myself who was an inexperienced (though, following army service not quite so young) teacher in 1947 and tried to take an active part in RSLA from 14 to 15 the questions readily suggest themselves: Would such a scheme have been possible 25 years ago? How, if at all, did the working climate of those days differ from that of today? What comparisons can be made between developments associated with the raising of the school leaving age in the 40s and in the 70s?

The Past

The first point which comes to mind is that when the school leaving age was raised in 1947 the aims and purposes governing syllabuses and curricula were by no means defined with anything approaching the comparative clarity which prevails today. The new secondary modern schools constituted a brave new venture—but by and large a negative one, intent on turning against what had existed before without too much thought as to what should be put in its place. Joslyn Owen has described them as

> 'having everything to do with self-advancement, personal growth, and the broadening of a pupil's outlook. It did not matter that there should be no examinations—indeed that was to be a major strength of

> the secondary modern schools. They would not be forced into competition with grammar schools; they would prove their worth to the community in other ways. They were in fact to be schools which *belonged* to each community. They were to be very different from what had gone before and their curriculum was to be the main reason for this difference. Little, unfortunately, was said about the type of learning which actually would transform old traditions into new ideals.'

So trends became woolly and vague. I was proud to take the children out of the classroom and to show them the municipal utility services—but I more or less left it at that. In those days we did not have the vision, courage or even facilities—not to speak of professional or public support—to carry out comprehensive activities on the lines of the big community schemes which are now being done in my school and so many others. As a profession we did not perhaps quite realise the damage we may have caused by this well-meant but ineffectual approach; yet in many cases we possibly merely instilled a sense of inferiority and frustration in the children. As Denis Lawton has put it—

> . . . if we really believe in equality of educational opportunity then we cannot be satisfied with giving some children a genuine understanding of physics and chemistry but giving others—the so-called less able—no more than a walk round the gasworks. If the gasworks tour does not result in the same *kind* of scientific understanding as the classroom lessons (even if it is not identical) then our claim of equality of opportunity is a sham.

And yet, I am sure our motives were the correct ones: we instinctively felt that the curriculum would have to be broadened, subject barriers brought down, new horizons opened and new methods explored. The techniques, with some exceptions, were pathetic: nobody wants to see the artificial projects when 14 and 15 year old boys and girls cut out paper or built models in a style more suited to their 4 and 5 year old brothers and sisters; they were happy perhaps, but by no means stretched to capacity.

> In more negative terms, we wished to avoid courses similar to the mixture of civics, home economics, and social training characteristic of some social studies in the 1940s and 1950s. . . .
>
> (Schools Council Working Paper 39)

The projects, primitive though they were, in some measure also took into account another fundamental need: the importance, and recognition of the importance of personal relationships. By taking the children out on systematic visits we gave them opportunities to observe, and to talk to grown-ups at work, to see how they (successfully and unsuccessfully) got on with each other, and to obtain at least a glimpse of the interaction between the various industries and the interdependence existing in modern society. Those, at least, who were 14 or 15 years old in 1947 or later, and were educated by more outward-looking methods, should not now be surprised at the fact that comparatively small sections of the population are able to yield a very far-reaching influence over the progress and development of the whole community and country.

The Present

Bearing this brief review in mind, where do we stand today, on the eve of another educational leap? What, for example, are the prevailing

views of our aims in education? Gone are the days of mere negative reaction to the existing, certainly, but '*Enquiry 1*' nevertheless makes it perfectly clear that there still exists a wide gap between the views of teachers, on the one hand, and of many parents and pupils on the other. How can we reconcile the teachers' objectives to develop personality and character, with the parents' and pupils' conviction that skills which will be 'useful' in working life are the all-important achievements?

Perhaps techniques can help and here big advances have been made. The skilful teacher, by making the work 'relevant' to the youngsters, can at the same time satisfy his pupils' preoccupation with their future jobs and the deeper purpose of education as he sees it as a professional person. Careers work, for instance, does not only consist of information about vocational requirements for the various categories of employment, though that is important enough, but also, imperceptibly, leads young adolescents to a better insight into their own abilities and limitations; in fact, to an examination of their own personalities. When 'Careers' becomes incorporated in our core course these enquiries can be made even more searching by being extended to a consideration of the individual's place in the community, and (through drawing in R.E.) the justification of his conduct within his relationship—or lack of it—with the supernatural.

There have been significant curriculum changes too and these, of course, are closely linked with present-day educational aims. In this context, the integration of academic disciplines, or the disappearance of whole subject areas and their re-appearance within the thematic approach of team teaching or combined studies open entirely new vistas. Such developments represent a long cry from the days in 1947 when the combination of history and geography was considered the height of daring and by some teachers was believed to endanger the whole foundation of education: how could children live without knowing in which year the Crimean War had broken out!

Thus, our team teaching activities provide an important complement to the Social Education scheme by dealing with the same complexes from the personal angle rather than from the point of view of the community. In this way, 'Myself and the Law', 'Myself and the Family', 'Myself and my Body', or whatever else the theme may be, become essential topics of study, and helped our young people to understand the complicated and often impersonal set-up of modern life by being 'useful' in the more narrow sense of personal information and in the wider one of facilitating personal adjustment.

Personal relationships have long been lifted out from the theoretical stage at which they were once dealt with and have merged with the whole approach to learning. Gone are many features of autocracy once taken for granted; unstreaming, tutorial set ups, scholars' councils, etc. have brought the fresh wind of democratic change right into the centre of school life.

I am sure that, at Ravensdale, it would not be easy for teachers and taught to work together if we were still streamed. In that case, most pupils from the residential districts would populate the 'A' forms while those from certain estates would inescapably congregate in the 'C' streams; a deep cleavage would appear right through the school organism and endanger harmonious collaboration.

The tutorial system, a vertical arrangement of the school into 16 groups comprising boys and girls of all ages and abilities, makes the all-important exercise of pastoral care easier as members of the same families are being kept together, the same teacher looks after the same group all the time, and personal information about the members of the group is concentrated in one teacher's hands. Above all, the system prevents the senior forms from becoming isolated units, which would be an undesirable development, particularly in connection with RSLA.

Similarly, the Scholars' Council which consists of one elected boy or girl from each of the 16 tutorial groups plus four members of staff (one from each House) under my chairmanship, and meets about three times a term, represents a valuable instrument of pupil participation. It is understood that it possesses no executive power but many of its recommendations—about whose discernment and commonsense I shall never cease to be agreeably surprised—are being implemented. Overall, the Council provides useful lessons in practical democracy and gives our youngsters the constant feeling that there exists true partnership.

Another factor facilitating personal relationships is presented by the school's many clubs and societies. I believe school from 9 till 4 only is out for many reasons, but perhaps the most important function of out-of-school activities is the creation of bonds between teachers and pupils who share a common interest in hobbies or leisure occupations, from sport via drama to intellectual pursuits.

With understanding and mutual respect come frankness and candour. Today problems of adolescent behaviour are discussed (if not solved) openly: remembering how in the 40s and 50s I tried to fight for sex education (with the General Council for Health Education issuing guiding lines as to the context in which the word 'contraception' might be mentioned) I am delighted at the freedom of discussion now possible and accepted.

A good deal of this change has come about through the increasing maturity of present-day youngsters. This is so not only because many are already staying on until they are 16; young people are growing up, in any case, much more quickly now than they used to do 20 or 30 years ago. 3rd-year pupils in the 40s were still children; today most of them are young men and women—though perhaps their biological development is in advance of their emotional one.

> This greater maturity provides a major opportunity to develop an approach to secondary education which will differ from the present approach more, and certainly more importantly, in the range and quality of the work that is attempted, than in its quantity. More of the same will not bring success. It is not the 'extra Year' that makes the difference; the opportunities of a five-year course are totally different from those of a four-year course.
>
> (Schools Council Working Paper 2)

So it would seem at first sight that we are set much fairer in many ways regarding RSLA in 1973 than in 1947—but are we, in fact, where fundamentals are concerned? Schools can pass on to the younger generation only the values society possesses and here, I would suggest, little real progress has been made in the past 25 years. There seems to me to exist today as much confusion and dissent about the purpose and direction of life as in the years immediately following the war,

and there has been little success either in adapting the handed-down objectives or forging new universally-acceptable ones during the past quarter century. Schools adhering, as they by and large do, to the traditional ideals represent islands in a sea of aimlessness, but their outlook is frequently rejected by the young, and this is reflected in the disillusionment of many of our pupils, their disagreements with adults generally, the often-mentioned 'generation gap'; call it what you will.

When I introduced our community service and social education schemes my aim was not just to be of use to the neighbourhood, or to encourage initiative and a sense of responsibility in our pupils, or to create new experiences which could be used for the existing subjects, important though all these considerations were. My principal purpose in bringing in these schemes was to find a common platform in the bewildering divergence of ideas, views and motives which divide people's thinking in today's world. After all every one of us, young and old, working class and middle class, idealist and cynic, can at least agree that we should help each other, support the sick and give relief to the infirm. We are, and have been for some time, a compassionate society (hence our great interest in human relationships); but with that, very often, agreement ends.

RSLA 1973 thus seems to me to be different mainly on the surface from RSLA 1947: as long as society, then and now, lacks unified beliefs and thoughts, education has to act in a philosophical vacuum, with its progress being confined primarily to techniques and methods and extending only to a much lesser degree to fundamentals. Western society as a whole is suffering a crisis: the most dedicated efforts of educationalists, therefore, can have only limited success.

This article emphasises certain features of the work of the General Certificate of Education examining boards which are perhaps insufficiently known to teachers and others.

Work of a GCE Board

R. CHRISTOPHER

R. Christopher is Secretary of the Joint Matriculation Board.

At a time when public interest in school examinations is more widely spread than it has ever been it is hardly necessary to point out that the activities of a GCE board affect a great many people in a variety of ways. Examination results, for example, can decide the future course of an individual career; the syllabuses on which the examination is based and the methods used to assess the work done by the candidates can have profound effects on teaching methods in the schools and on the content of school courses. It is important therefore that information about the examining boards' activities should be widely disseminated, all the more so since it is clear that there are basic misconceptions in some quarters about the ways in which the boards operate, not least in terms of the extent to which practising teachers are involved in their work and the extent to which the boards are keeping pace with educational developments in a time of rapid change.

The Joint Matriculation Board is the largest GCE board in terms of numbers of entries from within the United Kingdom, and it receives roughly a quarter of the total entry for England and Wales. In the summer of 1972 there were 185,000 JMB candidates who made nearly 572,000 subject entries at ordinary level and nearly 130,000 at advanced level. The Board differs from the six other English boards in that it limits its examining activities to the northern half of the country whereas the other boards operate over the country as a whole. The GCE boards differ from each other also in other ways. Since they came into existence at various times in the last century or more to meet different situations, such differences are hardly surprising, and it must be acknowledged that the variety of approaches to examining provided by the boards contributes greatly to the flexibility and freedom of the GCE system. The boards act in close consultation with one another, however, and follow broadly similar lines. Much of what is said here in respect of the JMB can therefore be regarded as applicable to all boards.

Teacher Participation

All but one of the English GCE boards have their origins in the universities. The boards derive many benefits from their links with higher education and it is no exaggeration to say that the opportunities which an examining board provides for teachers in schools and higher education to meet and work together on matters of common interest are of very great value not merely to the examinations but to the educational process as a whole. Teachers in higher education have also made an important contribution to recent developments in JMB examining, not least in the field of A-level science, and the Board's research and development activities as a whole owe much to them.

At the same time, while teachers in the field of higher education continue to make an important contribution towards developments in the board's GCE examination, there can be no doubt that the part played in the board's work by school teachers greatly exceeds that played by any other sector of education. Membership of the board itself is limited to 32 by the statutes of the five constituent universities which provide for a university membership of 20 together with 12 other members who are to be 'persons of experience in the practice or administration of education'; at present nine of the 12 are teachers in JMB schools, the remaining three being chief education officers. The board has however for many years now delegated the main responsibility for the organisation and administration of its GCE examination to an examination standing committee on which all the school teacher members of the board serve and on which they constitute a majority.

The examination standing committee considers proposals for new and revised syllabuses and new methods of examining in individual subjects, appoints examiners and revisers, decides the examination timetable and similar matters, and appoints the subject committees and preparatory sub-committees whose work is described below. It also advises the Board on all matters relating to the GCE examination, including matters of general policy. It is therefore a key body which carries great responsibility since both the volume of work and the degree of its complexity have grown enormously in recent years. At the time of writing the board is considering ways of giving more formal recognition to the responsibilities which the committee has for the examinations and of increasing its school teacher membership not only to meet the growing burden but also to spread more widely the degree of teacher representation at this level.

Subject committees are responsible for keeping under continuous review the syllabuses in the subjects referred to them with a view to ensuring that the syllabuses are in line with new developments in teaching in the schools and that the methods of assessment used in the examination are appropriate. There are at present 18 such committees and they play a major role in the development of new syllabuses and new methods of assessing the abilities which each subject examination sets out to test. Preparatory sub-committees are responsible for scrutinising and modifying the question papers drafted each year for examination use and for approving the papers in the form in which they will finally appear in the examination room. It is their duty to see that each paper represents a fair test of the syllabus on which it is based, and that the demands which it will make on candidates will be equivalent to those made by similar papers set in the past on the same syllabus. There are at present 59 Preparatory Sub-Committees, 31 of which are concerned with O-level papers and the remainder with A-level and special papers.

As regards membership of subject committees and preparatory sub-committees, teachers in schools which take the Board's examinations are in a majority. Each Subject committee and associated preparatory sub-committee is appointed for a three-year term of office, a third of the committees being appointed each year. The procedure followed is to invite the teachers' associations and the appropriate subject associations to submit nominations for appointment to the committees. In addition, the names of teachers who are likely to be able to make a special contribution to the work of a particular committee may be put

forward for consideration by subject committee chairmen or individual members of the examination standing committee. In the case of subjects not widely offered, individual schools or colleges with a strong interest in a subject may be invited to nominate a member of staff to serve on the committee concerned.

No proposal for the revision of a syllabus is adopted by the examination standing committee until it has been considered by the teachers' associations and appropriate subject associations and their views have been fully taken into account. (Syllabus revisions at advanced level are subject in addition to the approval of the Schools Council.) When proposed developments are especially far-reaching, as for example in the recent revision of the syllabus in A-level chemistry, new syllabuses are circulated to the schools in preliminary draft form and discussed at meetings of teachers organised on a regional basis. Questionnaires provide yet another way of consulting individual teachers about proposed changes in syllabuses or methods of examining.

Details of the membership of subject committees and preparatory sub-committees are published from time to time to provide all teachers in the JMB area with an indication of the spread of representation, in terms both of regions and of types of school. Teachers in the area also have a link with the Board through the standing joint committee of the teachers' associations which makes extensive arrangements for the collection and collation of comments and criticisms of each year's summer examination. A summary of the comments is prepared by the standing joint committee for the consideration of the appropriate subject committees and preparatory sub-committees; subsequently the committees' replies on these matters which call for comment are sent to the standing joint committee. The existence of these procedures in no way precludes a direct approach to the Board by a school or an individual teacher. Comments received in this way directly after a question paper has been taken are often of great value because they can be taken into account by the examiners before the actual marking of scripts begins.

Further opportunity for direct participation in JMB matters by individual teachers is provided by the subject conferences which the board holds at regular intervals in Manchester and at which each JMB centre entering candidates for the subject concerned is invited to be represented. These conferences make it possible for the board's committees and examiners to discuss new or revised syllabuses of recent introduction with the teachers actually preparing pupils for the examination. A report is published on each conference and copies are sent to the schools for the benefit of teachers who for any reason were unable to be present. A conference is also held in November each year with representatives of the teachers' associations. The comments on the current year's question papers referred to above are formally received by the board at this conference but its main function is to provide an opportunity for the discussion of major topics relating to the examinations. In recent years it has tended to concentrate on possible developments in the future; the main topic at the 1971 conference, for example, was the series of feasibility and development studies relating to a single examination system at 16+ which the JMB is currently undertaking jointly with four of the CSE boards in the North and Midlands.

The examiners themselves are predominantly practising teachers in

schools and other centres preparing candidates for the GCE examination. In the JMB examination held in June 1972 65.6 per cent of the 1507 ordinary level examiners came within this category; only 9.7 per cent were teachers in universities or polytechnics. At the advanced level, where teachers from higher education might be expected to predominate, they made up only 31.9 per cent of the total of 790, whereas the proportion of practising teachers in schools and other centres for the GCE examination was 48.7 per cent. In each instance the balance was made up by teachers in colleges of education and other institutions, together with a number of retired teachers.

Experimentation

It was for long customary in the field of secondary school examinations to differentiate between 'examining syllabuses' and 'teaching syllabuses'. In an attempt to reduce the effects of external examinations on what was being taught in the schools, examining syllabuses were made as brief and factual as possible; the boards saw their task as being to prescribe a series of topics in general terms, while each teacher was to prepare his pupils within this general framework in his own individual way, using his experience and his knowledge of his pupils to guide him. In practice things worked out differently. The lack of guidance provided by most syllabuses meant that teachers were increasingly driven to rely on past question papers which in turn, because they alone indicated in any detail what was likely to be expected of candidates, and because any deviation from the beaten path could have wide repercussions, tended to steer a safe course and become more and more stereotyped.

Of recent years it has become increasingly recognised that examination syllabuses exert a profound influence on the processes of teaching and learning in the schools and that, this being so, it is essential that the purpose which each syllabus seeks to serve should be fully known and understood, and not merely guessed at, by teachers, pupils and examiners alike. In the JMB examination a lead was given by a committee appointed in 1967 to consider methods of examining in A-level science subjects. This committee recommended that the abilities which each subject examination is designed to test should be defined and suitable weightings assigned to each ability. It also recommended that, in order to increase the reliability of the examination and to permit a wider sampling of syllabus content than had hitherto been possible, essay type questions in science papers should be reinforced by a variety of other types of question including objective questions, questions requiring short answers, and questions involving the analysis of data or the comprehension of a passage on a scientific topic.

Objective questions had already been used by the JMB for many years, for example in A-level general studies (since 1959) and in the board's university entrance test in English (since 1963), but on a comparatively limited scale. They are now used much more extensively, though only when their use can be seen to be appropriate, and never to the complete exclusion of other methods of testing. Questions requiring answers in the form of essays continue to have a specially valuable part to play since, although subjectivity in the assessment of answers may raise problems, essay-type questions are capable of testing abilities which cannot be measured by objective tests—for example, the ability of a candidate not only to bring his critical

qualities to bear on a problem and to select from the mass of material at his disposal what is relevant to that problem, but also to discuss it cogently in words of his own choice which must be sufficiently well put together to convey their meaning fully to the examiner.

The first JMB syllabus to incorporate a formal statement of the aims of the syllabus and the objectives of the examination was the revised syllabus in A-level chemistry which came into effect in 1971. This syllabus included, in addition to the usual list of topics to be tested in the examination, a statement of objectives which set out, under the headings 'knowledge', 'comprehension', 'application', 'evaluation and investigation', 'expression' and 'practical work', the abilities which the examination sought to test and the weightings assigned to these abilities in terms of marks. Statements of aims and objectives now form part of the syllabuses in a wide range of subjects of the board's examination and their number is growing as further syllabuses are reviewed and revised.

Arising from the discussions which accompanied the introduction of the CSE examination, school examinations are now regarded as having three 'modes'. The first two of these are of very long standing and Mode 1, in which both syllabuses and question papers are provided by the examining board, is the form most commonly found. Mode 2, in which the syllabus is devised by the school and the papers are set and marked by the board, has had no great following up to the present. Mode 3 is of more recent introduction; in this mode the school provides the syllabus, sets the question papers and marks the work, the whole process being subject to 'moderation' by the examining board with the aim of maintaining comparable standards between individual schools. Mode 3 is often associated with the CSE boards, but provision for this mode of examining is also made in the GCE examination.

Given the variety in methods of assessment which characterises school examinations today, the neat categories described above are no longer adequate in a situation in which the divisions between modes are becoming increasingly blurred. For example, the JMB experimental scheme of school assessment in O-level English language, which began in 1964 and in which 79 schools and 6594 candidates participated in 1972, has no set syllabus and no formal examination of any kind. In this experiment O-level grades in English language are awarded on the basis of the teachers' assessment of course work done in the year leading up to the examination, provision being made for training the teachers in the standards of assessment, through trial markings and group discussions, and for moderating each school's assessments.

The number of 'pure' Mode 3 examinations cannot therefore be taken as a reliable guide to the amount of school assessment which is going on. The current schedule of JMB 'Mode 1' syllabuses includes several (e.g. engineering science, French and housecraft at advanced level, domestic science and seamanship at ordinary level) in which there is an element of school assessment, and their number is likely to grow. In 1972 the Board also conducted, at the request of schools working either independently or in groups, a number of 'mixed mode' examinations in addition to a small number at ordinary level based exclusively on Mode 3. The 'mixed mode' examinations included 14 subjects, 11 at ordinary level and 3 at advanced level. Arts, science and crafts subjects were all represented and, even within the relatively small

number of subjects being examined, a wide variety of approaches was adopted. For example, several of the schemes were based on an existing Mode 1 paper offered in conjunction with the school assessment of course or project work, while others involved both a Mode 1 and a Mode 2 paper with school assessment.

Research

The GCE boards have long recognised the importance of research in the development of public examinations and devote an increasing amount of their resources to research activities. A Research unit with its own director and staff was set up by the JMB in 1964. The London board set up a similar unit in 1965. Three other boards, the Cambridge syndicate, the Oxford delegacy and the Oxford and Cambridge Board, instituted a joint research organisation in 1968. Other boards have research organisations, and the research officers of all boards meet at regular intervals to discuss matters of common interest, with especial reference to inter-board research projects, many of which are concerned with issues of comparability.

The work of the JMB Research unit includes not only the investigation of various aspects of examining on established syllabuses and the analysis and evaluation of the resulting data but also the initiation and oversight of experiments in examining on new syllabuses or by new methods. The Unit in this way has been involved in such diverse activities as the experimental scheme of school assessment in O-level English language described above, experiments in the school assessment of field work in A-level geography and biology, the school assessment of project work in applied science, and the experimental test of academic aptitude developed by the Committee of Vice-Chancellors and Principals as a possible means of supplementing the evidence at present available to university selectors. Investigations of different aspects of current JMB examinations cover a wide range. Amongst those currently in hand or recently completed are the following: an investigation into the relationship between school estimates and examination grades; methods of analysing the effectiveness of essay questions; a pilot study comparing performances in different alternative syllabuses in which candidates offer a common paper which can be used as the criterion for the comparison; a comparison between standards in advanced level subjects in which candidates' performances in subjects are considered two at a time using physics as the base-line subject; an investigation into the variability of examiners' standards as revealed in the re-marking of the samples of their work carried out by the chief examiners as part of the board's normal standardising procedures.

Some of the Research unit's work is reported from time to time in the series of JMB occasional publications* inaugurated by the Board in 1954. The latest of these (OP 33: 'Standards in subjects at the ordinary level of the GCE, June 1970') takes the form of a report by the director of the research unit on what is in effect the first large-scale investigation undertaken by an examining board into standards in the different ordinary level subjects which it examines, most previous work having concentrated on standards between boards within a given

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* Publications in this series are available free on application while they remain in print.

subject. In this investigation approximately 9000 ordinary level candidates took in 1970 a test of general ability which provided a measure of the calibre of samples of the entry for each of ten O-level subjects in the summer examination of that year. The mean test score of the candidates in each subject sample was compared with the mean GCE grade of the same candidates in that subject. By means of regression analysis it was possible to determine whether the standard in a given subject of the examination was 'lenient' or 'severe' when compared with the overall standard in the subjects chosen for the experiment. A report on a similar investigation carried out in 1971 in each of 15 ordinary level subjects will shortly be available.

Conclusion

This article began by suggesting that the work of the GCE boards was not widely understood and that there were misconceptions arising largely from lack of knowledge. It seems appropriate therefore to have ended with a reference to JMB occasional publications, which represent one of the ways in which the board tries to make known what it is doing. At a time when fundamental changes in the structure of secondary school examinations are under consideration, it is essential that full information about the way in which the current system operates should be available, not only to teachers, but also to the public as a whole. Perhaps the present brief summary of the work of one GCE board may serve its purpose in this context.

TREND-SETTER

Technical Graphics

For the past two years a technical graphics course, examined under mode III CSE has been running at Rawlins Upper School, Quorn, Leicestershire. Frank Ashton who operates the course discusses the reasons behind its development.

It is a common saying of technical drawing teachers that their subject is a graphical language—but it isn't! It is part of a much more comprehensive graphical language. As they specialise in a narrow range of techniques they tend to see only these techniques as valid in the fields of engineering and architecture, and refuse to accept that other fields of activity using graphical methods of presentation use techniques which can equally validly be called technical drawing. The strength of the subject lies in its depth treatment of a very narrow range of techniques.

For many years this subject has been the only one making any attempt to teach modes of conveying factual/technical information and ideas through graphics, although many subjects have recourse to them. But despite this, the subject has patently failed to develop fluency in such skills as it encompasses, since the pupil communicates nothing at all to anybody! Industry drew together relevant techniques (or developed them) for a clearly defined purpose as an integral part of the design and production processes. Schools lifted them out of this context and never replaced them in another such process, hence the techniques have become ends in themselves instead of means. The two major functions of any graphical techniques meant to be used with technical/factual material are *design* and *communication*. The failure with the latter has already been asserted, but failure in the former use of graphics is very common. This is probably because design work in so many schools is confined to *machine design*, which immediately precludes the younger pupil from attempting it in terms which are relatively sophisticated. If the field of operations in these schools had included such things as dashboard (and similar) layout, piping layouts, electrical layouts, plant and machinery arrangement, design work of a surprisingly high order could be attempted by many pupils now excluded by virtue of their lack of experience or ability in machinery design.

The enormous explosion of knowledge and its continuing high rate of increase carry certain implications. There are two main ones; firstly, unless we maintain our relative communicational efficiency the sheer volume of knowledge will overwhelm us, and secondly, unless we develop modes of communication other than purely linguistic ones the diversity of expanding knowledge will defeat us.

Once upon a time the kind of information best conveyed graphically was the preserve of specialists, of professionals, and the layman had either no need or no inclination to understand it. During the last two-and-a-half decades this has changed dramatically. Almost every mass medium of communication relies upon graphical techniques to put across appropriate material to the general public. One has only to open colour supplements, newspapers, serial magazines, hobbyist and Do-it-Yourself magazines, to look at television and film reports especially of foreign news and economic, social and population/industrial news to appreciate this. Educational and other films, textbooks for almost all school and other subjects include a large proportion of graphic presentations, and even the box for a lowly tube of glue will likely have graphical instructions on the side. We are bombarded with orthographic views, pictorial views and sections, charts, diagrams, maps, graphs, symbols and instructional strips; can we really deny the essential part played by this mode of communication in our society now?

Underlying the use of such techniques by those responsible are some unproven

assumptions. The most obvious one is that those at whom they are directed actually understand them properly. Another is that, even assuming they perceive the presentations as intended, they understand the relationship between the shapes, textures, lines, arrows etc. used, and the actual facts or ideas being conveyed. A third is that graphical techniques make clear to the layman such concepts, for example, as the Gross National Product, political 'swings' during an election, and so on. When one considers the amount of social, economic, industrial and population information screened on television, for instance, it becomes obvious that interpretation of what is presented is of major importance. Mass failure to view information presented in this way (or any way) critically leaves viewers open to subtle manipulation. Examples of this can be found easily during political campaigns at all levels, where graphical presentations of statistics are interpreted by those with most to gain from slanting them. It is quite easy to mislead people without intending to, even using accurate information, for often newspapers present graphs with only the major figures marked along the axes (and sometimes none) in order to emphasise the curves, thus aiming to create a visual impression rather than a detailed presentation of data. Critical appraisal of such things is essential, and although such an example as this may not be of interest to many people (i.e. 'straight graphs') the argument holds good for all kinds of graphically presented information and ideas. Even excepting this argument in favour of teaching graphical techniques, the sheer growth of the use of such techniques demands that we provide pupils with the skills to extract the maximum from graphical material, and so that they can better express their ideas and information as a part of their normal studies.

Concepts

When teachers talk about concept formation, it is almost always in purely linguistic terms. They seem to forget that an enormous amount of concept formation occurs through visual stimulation and perception other than the printed word with linguistic back-up. They also tend to forget that a great deal of linguistic development relies upon visual reinforcement. Indeed, although they tend to forget it in conversation, they implicitly realise it by using wallcharts for reinforcement. In presenting visual stimuli of this kind, one calls into play the pupil's creative, aesthetic senses as well as his intellect, and insofar as this is true, the less intellectually stimulated may very well begin to take an interest because these other senses are engaged. Spatial and colour perception play a great part in the visual perception processes, and the immediacy of visual material may lend itself to quicker understanding by not only the intellectually less stimulated, but also by the less able pupil. Of course, for this to be given maximum opportunity to happen, education in graphical communication is required!

In dealing with this type of material, one needs to help pupils to develop greater awareness of images, colour, texture, shape, size, etc., etc.; in fact all of those elements discerned by the artistic eye. But at the same time such sensitivities must be focussed on and disciplined to the criteria of THIS work. It may be that success in visual terms leads less linguistically inclined pupils to develop language use since they must marry it to graphics. Equally, one would have to watch for those who tried to substitute it for language inappropriately, thus impoverishing themselves linguistically even more. There are, undoubtedly, many more educational and social questions which will arise from the development of such a study as this in schools, and they will only be answered on the basis of experience or research. Indeed, many questions will only be asked upon the basis of experience.

Having set down all manner of interesting points, what does it all mean in concrete terms? Within the school there are two roles for Technical Graphics. Firstly it can be a useful, stimulating, educational study, and secondly it can be most useful as a general resource within the school as a whole. The provision of a graphics studio/workshop where both pupils and staff could find materials, facilities and expertise, would result in more accurate, attractive and clear graphics work of a high order.

Project work for the whole range of school subjects would benefit, and even normal internal school communications could benefit! Pupils using such a centre for producing graphical material for several subjects would begin to appreciate that, as with English, the same elements are applicable to all manner of situations in a logical, coherent and useful way. They would begin to see the degree of universality of the graphic language and thus increase their communication skills in a complementary way. The degree of self-organising that a pupil needs to do in order to translate information into a suitable graphical technique, select the most appropriate kind of presentation, design the total layout and finally produce a piece of communication graphics of a good standard is quite formidable; some might doubt that the average boy or girl could do it, let alone the less able.

However, the position taken in this article, and the ideas expressed, have been used as the basis to actually design, implement and assess a course in Technical Graphics. It has been in operation for nearly two years (CSE Mode III) and the results are both surprisingly good and encouraging. A considerable amount of interest has been aroused, particularly in the Craft/Design field, since teachers in these subjects see an immediate application of the techniques in the Design context. *But* the applications of the course are very much wider than merely these subjects and in point of fact the work produced by the pupils has not been of this kind. Both they and the teachers have concentrated upon the communication applications. It may also be of interest to know that, without being planned into the course, project work in the humanities subjects within the school has already begun to show the influence of the technical graphics course.

The Grassroots of International Education

Tiverton Grammar School is a co-educational day school in Devon for 800 pupils. Since 1971 the school has launched an extended international exchange which has involved all the fourth-year pupils for most of the summer term. Approximately two-thirds go to schools in France, Germany, and Denmark and the remainder act as hosts to the visiting pupils who exchange simultaneously. It is therefore impossible for any fourth former to escape some involvement with the exchange but even more important is the effect with such a transformed fourth year can have on the school as a whole. The school has begun to relate closely to the exchange now that it has been running for two years. Senior pupils who went on the exchange the year before were strikingly active in being kind and hospitable to the European visitors in 1972 and had in many cases renewed their contact with their exchange families during the intervening holidays. But juniors have also started to anticipate their fourth year exchange by expressing the preferences they plan for 1976.

The central part of the venture is the creation of an international community in the heart of the school and for a period almost as long as a term. It is an attempt to legislate in the school situation for the massive adaptation which this and succeeding generations will have to make as they live in Europe and the wider world in a much closer relationship than previously existed. Such a change can be traumatic and one would not under-estimate the cultural shock in Tiverton either at school or in the host homes.

A special programme is made which includes an integrated team teach involving the visiting staff as well as those in the school and was based this year upon a selection of the problems of European Society. The programme also includes other academic teaching in which Continental and English pupils are fully integrated. There is also a special part of each day which is reserved for the different groups to meet their own teachers and, if necessary, concentrate on work which they have brought with them. All pupils in this fourth year attend Assembly and share in the P.E. programme.

Complementary planning also exists for the English groups who visit France, Germany and Denmark. There are many

specific arrangements that relate to the specific schools concerned but two elements remain important in all the arrangements. One is that our pupils must work regularly on academic assignments which they take with them, and the other is that wherever possible the Devon children should be introduced into the routine class teaching timetable of the foreign school. It is therefore of cardinal importance that the pupils realise that this is a working exchange and not a carefree holiday. Indeed anything less than this would be irresponsible to pupils who are on the threshhold of their fifth form year. Parents do express concern about the possible loss of academic working time but assuming that extra work will be done in the following summer holiday the evidence is so far favourable.

Key Elements

After two years, certain key elements stand out as being especially noteworthy. The most important is that the exchange needs a single-minded co-ordinator. The Head of the Department of International Studies is responsible for the whole of the arrangements and although he has a teaching timetable he nevertheless has the exchange as his major responsibility. He is in fact a linguist but the exchange has never been seen in these narrow terms and parties have been taken by a physicist, an economist, a handicraft teacher, and a P.E. master. It is a matter for interesting conjecture whether the language teacher or the non-language teacher communicates better in a foreign country. There can sometimes be advantages in not being able to speak the language.

One should also mention the vital element of staff support because without this the project could not function since so many demands are made which are bound to be based on goodwill because of their spontaneous nature. It is the staff who have to plan new courses, cope with poor English, adjust their techniques, and at the same time seek to create an international climate in the school. After considerable debate in the early stages the staff voted almost unanimously to support the idea. Without such strong support it would have been foolhardy to have pursued a plan which so transforms the summer term in the life of the school.

The simultaneous nature of the exchange means that the most the young people who change homes see of each other is normally just a night. This idea, originally proposed with caution, has now become an important feature of the whole concept. Part of the virtue of such a plan is that parents who have temporarily lost their own child, take greater pains to adjust to the replacement and seem ready to accept with more tolerance their European idiosyncrasies. Certainly there have been far fewer problems than with previous exchanges and even minor complaints about food have never been so rare. What has also happened has been that whole families have chosen to visit each other in the summer holidays.

The final element worth significant comment involves the choice of staff to lead the European parties. It has already become strikingly clear that special qualities are demanded from a teacher who is in complete control not only of the children, but also of the negotiations with the host school, and the host families; the qualities needed involve considerable resource, an ability to communicate with the young, and a firm belief that the project is so valuable that it is worth some hardship and a lot of hard work. It is not sufficient to appoint a teacher who would be adequate taking a small party for ten days to Ostend but is quite inadequate to take complete charge of 20 pupils in a foreign situation for two months. Devon County Council have allowed the school to appoint staff wives as part-time staff during the stay abroad and this not only provides a helpful co-educational team, but also helps to give some financial help to the difference in the cost of living and other expenses which soon arise in a foreign situation.

The problems we have created have been legion and I suspect that as long as the exchange exists the problems will multiply. It is just impossible to uproot ninety Devon children, exchange them with a comparable number of European pupils, co-relate innumerable time-tables, and personal arrangements and emerge unscathed. But most of the problems have been minor

compared with the hope that what has been attempted is trying to increase understanding, tolerance, and a sense of independence in the young. Almost all the pioneer work in international education has come from schools separated for the purpose. This is not wrong but it is limiting and would be tragic if it was the frontier beyond which no other interesting ventures stopped. In any case it is crucial for all of us to see the mixing of young people as a normal part of our educational diet and not as something reserved for an international community or for enthusiasts. At Tiverton we believed, and still believe, that real understanding comes from young people learning to live with each other's differences; the role of the school in this is to provide the educational context in which it can happen easily and effectively.

This item was contributed by Mr. A. J. E. Lello, headmaster, Tiverton Grammar School.

'Drama at Kingsway'

'Don't put your daughter on the stage Mrs. Worthington . . . send her to Kingsway College of Further Education instead.' In an overcrowded profession like acting this could be sound advice. Kingsway College is one of about 20 colleges in the country now running GCE courses in speech and drama. The value of these courses is that they perform the useful function of allowing stage-struck young people what amounts to a diagnostic period in which they can sample theatre work without commitment to a career in acting. In practice some—a very few—of the entrants do go on to take a drama course, others turn to a teaching career; still more leave drama to a hobby.

The course at Kingsway is run by John James and Caroline Maynard who put considerable emphasis on general education, not just drama. Balance of the work changes over the two years of the course, the first year being concerned with finding out if the student has any talent for acting. At the end of this time pressure is seldom needed to convince a student the course is not for him, he will have convinced himself.

Structure of the course

In the first year one-third of the students' time is taken up with specialist studies in speech and drama. The remaining two-thirds is used to continue their general education and to prepare them for additional GCE O- and A-level examinations.

Specialist studies include acting, improvisation, voice production, costume and play-reading. First-year students will not normally take part in public or studio performances, and their work will be based on improvisation rather than play texts.

Students are guided to develop their own personalities, insights and talents, and encouraged to test their vocation for work in speech and drama.

At the end of the first year, there is an assessment of each student's progress, and enrolment for the second-year course will depend on the achievement of a satisfactory general standard, evidence of determination and the promise of ability in the specialist field. Those advised against continuing the course can move with ease into one of the general educational courses of the college.

In the second year time ratios are reversed: two-thirds of the students' time is spent specialising in speech and drama, and the remaining one-third given to general education.

The specialist studies of the first-year course are continued and widened to include practical experience in stage management, working on a play text, and performance. Emphasis is placed on the history of drama being performed, and the course includes visits to professional performances and rehearsals, and visits back stage of a professional theatre company.

Individual tutorial sessions ensure that every student is given advice on appropriate further training and career prospects.

A special feature of the course is the inclusion of a related arts course which joins speech and drama students with those

following specialist courses in music in a combined study which explores the relationships between the arts and literature and their influence on one another.

At least three O-levels are desirable entrance to the course, but the timetable is flexible enough to allow the general education segment to be taken at O- or A-level.

Most students who last the full two years usually have enough talent to consider a career linked with drama but not necessarily acting. Some go on to become teachers specialising in drama.

The Kingsway course is guided by a committee (the Assistant Secretary of Equity is a member) and makes use of visiting lecturers for specialist aspects of the theatre like stage management.

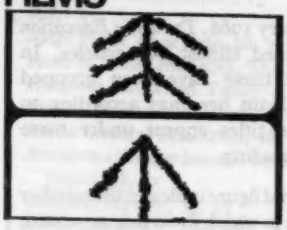
The course—unlike acting schools—has been under-subscribed each year since it began in 1969; 40 students (20 in each year) can be accommodated. At present there are 26 (16 first year and 10 second year).

The college emphasises that it is not setting out to be a drama school in miniature. The course is designed 'to stimulate imagination, to widen interests and sympathies; to give experience in basic use of body, voice, memory and imagination through improvisation; to instruct in elements of speech, movement, play-reading, rehearsal, stage management, costume and performance.'

New Editor

Trends in Education now has a new Executive Editor. Sybil Brown, who formerly edited *On Course*—the Department's magazine of further education—took over on January 1st. Martyn Clémans, who has edited *Trends* since it began in January 1966 moves to the films and exhibitions section of the Department's Information Division.

FILMS



What Did You Learn At School Today

A lively and highly professional film about comprehensive schools in Leicestershire. The thesis is that there are two views of education. One is that all the most valuable education is self-education, the best discipline self-discipline; and the other that things have to be imposed and enforced on pupils who expect to be more or less passive.

The film argues in favour of the former approach of course, illustrating by means of the work of six schools in the county of Leicestershire the everyday life of pupils in them.

There is no commentary, the schools speak for themselves through their pupils and their teachers.

Of the six schools involved, two are primary with an age range 5 to 11, two Leicestershire-plan high schools—one for children from 10 to 14 and the other for children 11 to 14; and two upper schools which cater for students in the 14 to 18 age range.

Visually the film is good; the colour bright and clear. The common failing of education films, lack of pace, is avoided—almost too much so; at times one is left slightly breathless by all the camera movements and crescendo background music (played by pupils). But *Trends* hasn't been left breathless by an educational film for a long time.

What Did You Learn At School Today? runs 43 mins; prints are 16 mm and there is a hire charge of £15 for two days—which is a bit on the high side. The film is available from the Leicestershire County Library Services to Education, Clarence Street, Leicester LE1 3RW.

Since January 1966, *Trends in Education* has published almost 400 articles. In this index these have been grouped under 30 main headings according to title. Some titles appear under more than one heading.

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